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To Individuals and Agencies

Regarding: Draft Environmental Impact Statement
Yerba Buena Center
Urban Renewal Project (Calif. R-59)
San Francisco, California

Ladies and Gentlemen:

Enclosed is the Draft Environmental Impact Statement for the Yerba Buena Center Urban Renewal Project in San Francisco, California for your review and comment in accordance with Section 102(2)(c) of P.L. 91-190 (U.S.C. Section 4332) and implementing Federal regulations. It is proposed that HUD approve two changes to the original Urban Renewal Plan.

We invite you to submit comments on the enclosed Draft Environmental Impact Statement. Your responses and comments will be considered in the preparation of the Final Environmental Impact Statement. Submission of your comments within forty-five (45) days would be appreciated so that the Final Statement can more fully reflect your views.

Copies of this Draft Environmental Impact Statement are available for reading by the public in the information centers of the San Francisco Area Office, the HUD Regional Office at 450 Golden Gate Avenue, San Francisco, and the Main Library in San Francisco's Civic Center. Retention copies may be purchased by the public from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151.

Your comments on this Draft Environmental Impact Statement should be addressed directly to:

Mr. James P. Jaquet
Program Manager, Area C
Operations Division
U. S. Department of Housing & Urban Development
One Embarcadero Center, Suite 1600
San Francisco, California 94111

Sincerely,

James H. Price

James H. Price
Area Director

D

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ENVIRONMENTAL IMPACT STATEMENT

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Environmental Impact Statement
Section 102(2)(C) Environmental Statement Clearance
HUD-RO9-EIS-74-1D

for

Yerba Buena Center
Redevelopment Area
Project No. Calif. R-59

Applicant Agency:

San Francisco Redevelopment Agency
939 Ellis Street
San Francisco, California 94109

Funding Agency:

Department of Housing and Urban Development
San Francisco Area Office
One Embarcadero Center, Suite 1600
San Francisco, California 94111

Prepared by:

Department of Housing and Urban Development, Region IX
February 1974

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I. Purpose and Methodology

On May 21, 1973, the San Francisco Redevelopment Agency submitted to the Department of Housing and Urban Development (HUD) a series of proposed changes to the Urban Renewal Plan for the Yerba Buena Center Redevelopment Area.

In addition to these recently proposed changes, Plan Change I submitted to HUD in 1971 is awaiting final HUD action.[1]

It was the determination of HUD that approval of these proposed changes, taken cumulatively, would constitute a "major federal action" under the intent of Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, and, thus, would require a full Environmental Impact Statement (EIS) prior to HUD's final action.

It was further determined that HUD should prepare the EIS on the entire project, in accordance with HUD's environmental guidelines, as published in the Federal Register of July 28, 1973:

> Retroactivity. To the maximum extent practicable, environmental clearance shall be required for uncompleted projects which have never gone through an environmental clearance under NEPA, at such time as a subsequent significant HUD action, such as the next stage of program approval or approval of a major amendatory, is proposed. Where it is not practicable to reassess the basic course of action, major attention should be given to measures, which, given the stage of project completion, may reduce adverse environmental impact. It is also important in taking further action that account be taken of environmental consequences not fully evaluated at the outset of the project.[2]

The purpose of HUD's EIS is, therefore, twofold. First, to assess the environmental impacts of the proposed plan changes as a determining factor in HUD's decision for approval or disapproval; and, secondly, to retroactively assess the entire project to determine what, if any, additional steps should be taken at this time to minimize any identified adverse environmental impacts.

---

[1] Refer to Section III.E. of this Statement for a description of the Proposed Changes.

[2] Federal Register, Volume 38, No. 137, Part III, July 18, 1973, Chapter 2, 5.a.(4).

The EIS study team consists of twenty-two HUD generalists, planners, and technical specialists, with the assistance of the Environmental Protection Agency (EPA) and URS Research Company in the field of air quality and a statistical methodologist from the University of California at Berkeley in the area of economic projections. The use of existing data and reports has been supplemented through interviews, field inspections and other primary research.

The first section of this Statement presents a general description of the Yerba Buena Center Redevelopment Project, its history, proposals, and current status. In an effort to reduce the Statement's bulk and internal duplication, general descriptive information is not repeated in each of the Impact Sections. However, footnotes have been provided to facilitate cross-references where these appear helpful.

Environmental impacts of the Project and its proposed Plan Changes have been gauged in comparison to the existing characteristics of the site and the City, rather than to those characteristics which existed at the time of original Project approval in December 1966. Since the conditions of 1966 cannot be recaptured, it appears futile to use those as a standard of comparison.

This Statement considers the probable environmental impact of all proposed Project activities. Although the argument has been made that a major portion of the office space would be constructed elsewhere in the City if Yerba Buena Center were not to proceed, that does not justify ignoring its impacts, both positive and negative. A major purpose of an urban renewal project is to provide planned direction for development in a locality, and to minimize the negative and maximize the positive impacts of that growth. Therefore, the full impacts of the proposed office space are considered throughout this Statement as a new activity, in order to determine what, if any, additional direction or guidance is needed to mitigate against any adverse impacts of this growth.

An attempt has been made to reduce the potentially speculative nature of an EIS by establishing objective standards of measurement, where possible, and by limiting the amount of prognosis to those areas where adequate data exists to substantiate projected trends.

Comments were solicited from interested groups and individuals prior to the development of the study design, and are further encouraged in response to this Draft Statement. The Draft Statement will be available for comment for a period of 45 days. Upon receipt and consideration of these comments, HUD will prepare a Final Statement, including recommended action. The Final EIS will be circulated to the public 30 days prior to any final action by HUD.

II. Description of Urban Renewal Program

The Federal Urban Renewal Program was established by Title I of the Housing Act of 1949 to assist localities in the rejuvenation of physically blighted or deteriorated areas. Eligible activities under this program include planning for reuse of land; acquisition of property; relocation of residents into decent, safe and sanitary housing; relocation of business firms; rehabilitation of structures that are capable of rehabilitation and will conform to the land use plan; and demolition and site improvements necessary for the preparation of cleared land for resale to private or public redevelopers.

Program applicants may be either local governing bodies or redevelopment agencies, as authorized by State enabling legislation. Initial applications are made to the Department of Housing and Urban Development (HUD), in accordance with legislative criteria and Federal regulations as contained in HUD's Urban Renewal Handbook (RHA 7200 through RHA 7228). Upon approval by HUD, Federal grant funds are reserved and a survey and planning advance is made.

During this planning phase, buildings and social needs are surveyed and an Urban Renewal Plan is prepared. This Plan, when adopted by the local governing body after necessary public hearings, becomes the governing document with regard to acquisition, demolition, land use and building controls for all new development and rehabilitation in the project area.

Upon HUD approval of the locally adopted Urban Renewal Plan, a budget, financing plan, and legal contract are signed by HUD and the Local Public Agency (LPA) committing Federal funds to assist in the project. The amount of Federal funds required is determined in the following manner:

Gross Project Costs (all estimated project expenditures)
- Disposition Proceeds (estimated money to be earned from the resale of prepared land)
= Net Project Costs (expenditures not covered by land proceeds)
x 2/3 (eligible Federal share of Net Project Costs)

= Federal Grant

The Gross Project Cost consists of all expenditures made by an LPA for a given urban renewal project. The net project cost is the gross cost less proceeds from resale of land. The eligible Federal grant is two thirds of the net project cost. The remaining one-third share of the net project cost must be provided locally, either in cash, or through certain public improvements or supporting facilities known as non-cash credits.

The LPA is authorized by HUD under the Contract for Loan and Grant to secure a loan adequate to cover the initial cost of acquisition, site preparation, relocation, interest and administration. As land is prepared and sold, the proceeds are used, in conjunction with the Federal grant, to repay the outstanding loan. Financial settlement is made at the completion of the project when all LPA activities are completed and all land has been sold.

III. Project Background
and
General Description

A. Location and Size

The Yerba Buena Center Redevelopment Area encompasses 87.3 acres of land situated to the southeast of San Francisco's financial and downtown retail districts in the area known locally as the "South of Market."[3] It consists of 3 entire blocks and portions of 10 adjacent blocks generally bounded by Market Street to the northeast; Fifth Street to the southwest; Harrison Street and the James Lick Freeway to the southeast; and Hawthorne, Second and New Montgomery Streets to the northeast.[4]

B. Background Chronology

The South of Market area was one of the earliest to be developed within the present boundaries of San Francisco. Building in the area began shortly after Jasper O'Farrell first platted the area in 1847. Largely destroyed by the fires resulting from the 1906 earthquake, the area was rebuilt in a mixture of industrial, commercial, warehousing, residential and hotel uses.

In September 1921, the Board of Supervisors of San Francisco (hereafter the "Board") passed its first zoning ordinance which designated the South of Market area for commercial and light industrial uses. Although there was a slight commercial and industrial building boom in the 1920's, development was minimal during the 1930's and the 1940's. In April 1953, the Board designated a portion of the South of Market Area as Redevelopment Area D (refer to Exhibit 1). Following Federal rejection of an application for renewal funds in September 1958, the Area was de-designated as a blighted area in order to encourage private development. In the ensuing years, private developers began assembling land parcels, which resulted in the displacement of approximately 500 persons and the demolition of ten hotels. By Board Resolution No. 782-61 adopted December 11, 1961, Area D was re-designated as a blighted area.

In October 1962, the San Francisco Redevelopment Agency (hereafter the "Agency") received a grant for survey and planning activities from HUD to plan for the redevelopment of Area D-1, now known as the Yerba Buena Center Redevelopment Area (YBC).

---

3 - As used in this text, "South of Market" refers to a 66-block area generally bounded by Market Street, The Embarcadero, Tenth Street and China Basin Creek.

4 - Refer to Appendix A for legal description of project boundaries.

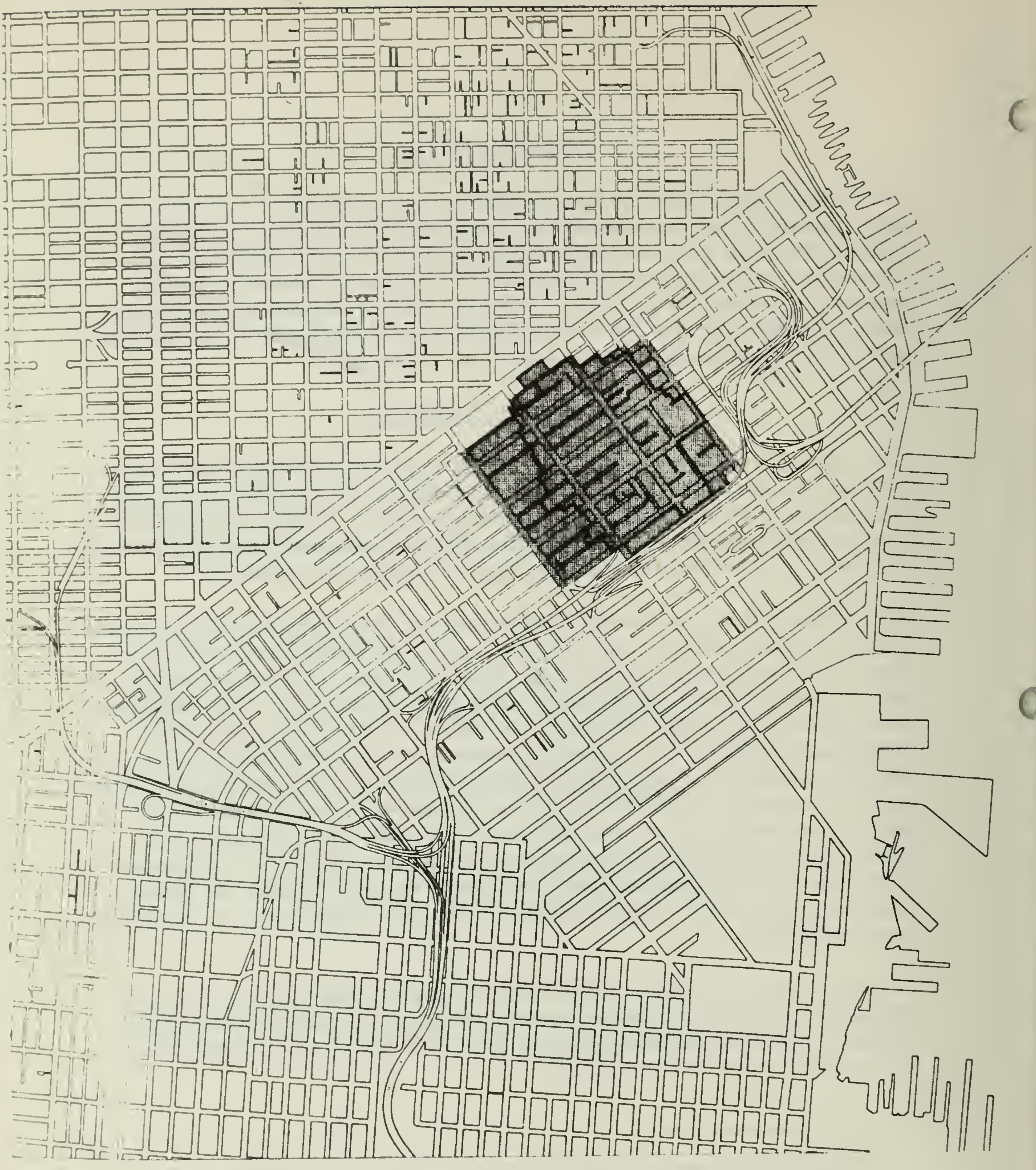


EXHIBIT 1

■ REDEVELOPMENT AREA

— PROJECT AREA BOUNDARY

LOCATION MAP

SOUTH OF MARKET REDEVELOPMENT PROJECT AREA D-1

LIVINGSTON AND BLAYNEY
CITY AND REGIONAL PLANNERS

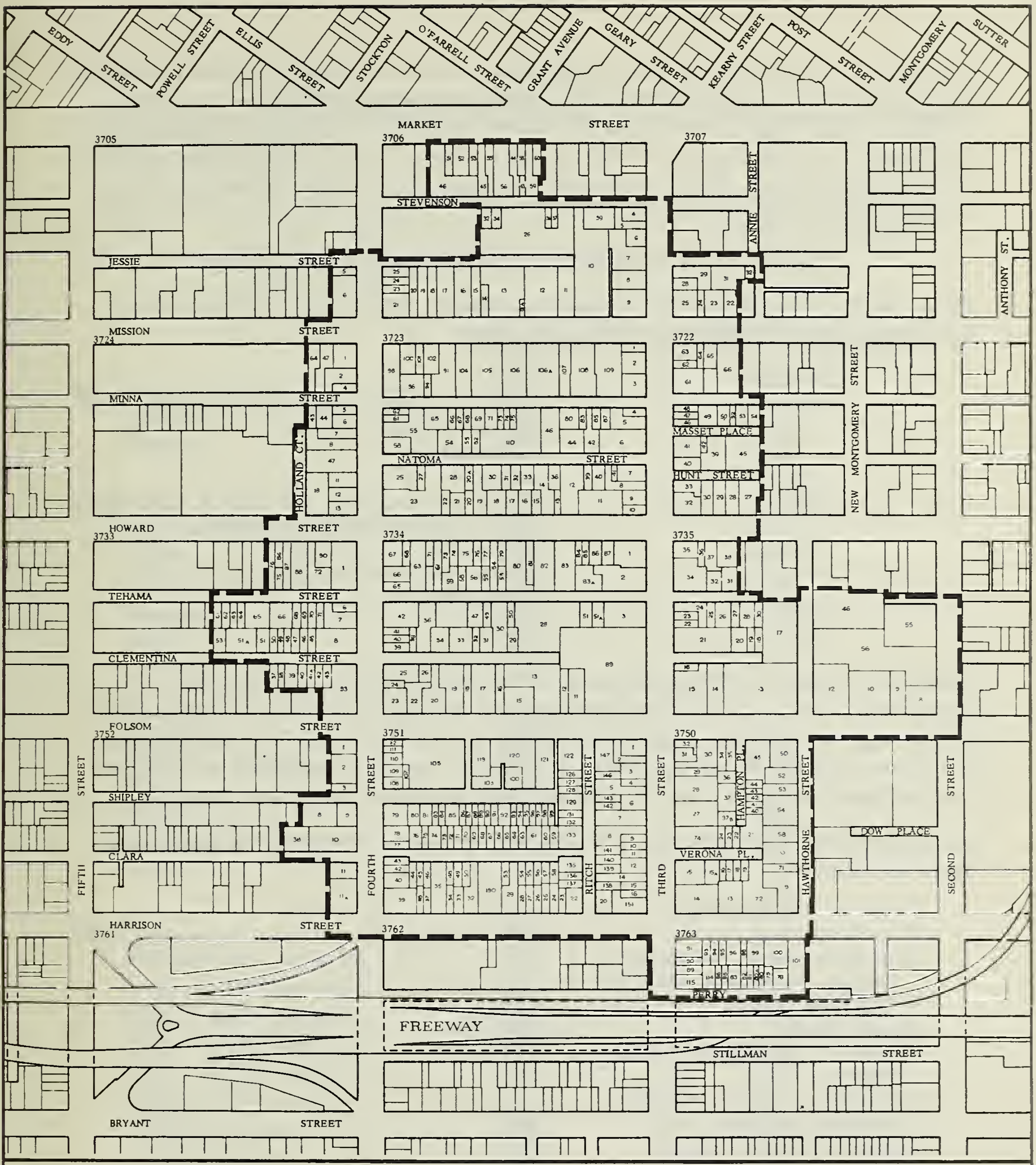


EXHIBIT 2

YERBA BUENA CENTER

REDEVELOPMENT PROJECT AREA D-1

PROJECT AREA BOUNDARIES

▬ ▬ PROJECT AREA BOUNDARY
3700 ASSESSOR'S BLOCK NUMBER
☐ LOT NUMBER

0 FEET 200

JULY 1971

SAN FRANCISCO REDEVELOPMENT AGENCY

The Part I Application for Loan and Grant under the Urban Renewal Program was submitted to HUD in December 1964. Following HUD approval of the Part I, a Part II application was developed and approved by the Agency and the Board, and submitted to HUD in April 1966. These applications provide a description of the Project Area as it existed prior to the initiation of the Urban Renewal Plan.

C. Project Area Composition - Prior to Redevelopment

By the mid-1960's, the Project area was wholly urbanized. Following is a breakdown of pre-Redevelopment land uses:

# Acres	Uses
30.8	Streets, alleys, and other public rights-of-way
3.3	Residential
6.3	Hotels
28.9	Other commercial, including approx. 22.5 acres in parking lots
14.8	Industrial
1.8	Public and institutional
1.4	Unimproved
87.3	TOTAL

There was a total of 404 structures in the project area, of which 82 were residential and 322 were non-residential. A 1963 field survey sponsored by the Agency and the Department of Public Works found that, based upon City code standards, 240 of these structures were substandard to a degree warranting clearance, and 63 others had serious physical deficiencies.[5]

Approximately 586 firms were engaged in private enterprise in the Project Area as follows:

Contract construction	15
Manufacturing	104
Transportation, communication, & utility service	7
Wholesale trade	104
Retail trade	144
Finance, insurance & real estate	12
Services (hotels, parking motion pictures, etc.)	187
Auxiliary warehouses	13
	586[6]

---

5 - E. M. Schaffran & Company, Relocation Survey Report, December 1963.

6 - Part II Application for Loan & Grant, R 309, Exhibit C, "Report on the Redevelopment Plan," prepared by the SF Redevelopment Agency, December 3, 1965, and approved by the Board of Supervisors, April 1966. These applications were the subject of extensive HUD reviews and field inspections at the time of submittal.

Of these firms, 86% were tenants and 60% had been in their current locations for less than 10 years.

There were 3,165 single persons and 253 families living in the area in 1963.[7] A survey conducted at that time by E. M. Schaffran & Company[8] revealed the following characteristics:

	Single (93%) Individuals	Families (7%) (Head of Household)
Sex		
Male	94%	85%
Female	6%	15%
Race		
Caucasian	88%	31%
Black	7%	45%
Spanish Speaking	2%	6%
Oriental	1%	12%
Other	2%	6%
Age		
over 75	6%	1%
66-75	17%	6%
56-65	24%	15%
46-55	28%	27%
31-45	20%	34%
0-30	5%	17%
Income		
$99/per mo. or less	24%	9%
$100 - $199 per/mo.	33%	15%
$200 - $299 per/mo.	15%	17%
$300 - $399 per/mo.	13%	15%
$400 - $499 per/mo.	7%	16%
$500 - $599 per/mo.	4%	12%
$600 and over	4%	16%

---

[7] - The Victorian Hotel was later eliminated from the project area, reducing the single household population from 3,165 to 3,050 and the family households from 253 to 250.

[8] - Based upon interviews of 96% of the families and 83% of the individuals.

	Single Individuals	Families
Source of Income		
Self-employed	2%	8%
Employed by others	41%	57%
Retirement income	25%	6%
Public Assistance	25%	15%
Current or past military	4%	1%
Other	3%	13%
Residence		
Hotel rooms or domitory	97%	41%
Flats or apartments	3%	57%
Single-family homes	*	2%

---

* Less than 1% (or 3 individuals) lived in single family homes.

In summary, the vast majority of persons living in the YBC Project area prior to Redevelopment were single (93%), male (93%), Caucasian (87%), and over the age of 45 (68%). The majority of the families were employed (65%) receiving an income of less than $400 per month (56%) and living in flats or apartments (56%). The majority of the single individuals were unemployed (57%) receiving an income of less than $200 per month (57%), and living in hotel rooms or dormitories (97%).

Incidences of disease, crime and fire in the area were disproportionately high in comparison to the city-wide rates.

Incidences per 1,000 Population-1964[9]

	San Francisco	YBC Area
Tuberculosis	.67	5.53
Veneral Disease	7.70	23.64
Arrests for Drunkenness	32.24	998.66
Arrests for Major Crimes[10]	68.63	341.65
Arrests for Minor Crimes	29.29	139.28
Fires	.26	.96
Fire Department Calls	.60	1.59

In 1965, a Redevelopment Plan was developed for the Yerba Buena Center Urban Renewal area.

---

9 - E. M. Schaffran

10- The following are considered major crimes: manslaughter, rape, robbery, aggravated assault, burglary, grand theft, petty theft, and auto theft.

D. Project Area Composition - Current Status

On December 2, 1966, HUD signed a Loan and Grant Contract with the Agency authorizing the commencement of Urban Renewal project execution activities, including property acquisition, relocation of households and businesses, demolition of structures, installation of site improvements, and disposition of property for redevelopment in accordance with the requirements of the Urban Renewal Plan. As of June 30, 1973, HUD had contracted with the Agency for a total of $44,991,239 in federal funds toward the Project's estimated net project cost of $91,279,448.[11]

As a result of the completed activities, the composition of the project area is substantially changed from its 1964-66 characteristics. As of June 30, 1973, planned activities had been completed to the following extent:

Project Status
June 30, 1973

Redevelopment Activities Planned		Activities Completed as of June 30, 1973	% Completed
a. Acquisition			
By Acre	49.9	43.0	86.1%
By Cost	$38,623,000.	$37,382,246.	96.8%
b. Demolition & Site clearance			
By Acre	168.5 acres	66.1 acres	39.2%
By Structure	351 bldgs.	254 bldgs.	72.4%
By Cost	$1,975,050	$1,109,318	56.2%
c. Relocation Workload			
Families	199	167	83.9%
Individuals	1818	1209	66.5%
Businesses	490	387	79.0%

---

[11] Refer to Section II of this Statement for the definition of "Net Project Cost:" this figure does not include the cost of construction following the conveyance of prepared renewal land.

d. Project Improvements By Item I Cost	$360,861.	$92,498	25.6%
e. Land Disposition			
By Acre	49.9	2.4 acres	4.8%
By Proceeds	$22,834,053	$424,575.	1.9%
f. Property Rehabilitation By Structure	42 bldgs.	18 bldgs.*	42.9%
g. Local Grants-in-Aid By Credited Amount	$53,532,964	$1,241,664	2.3%

*Three buildings have been rehabilitated to Property Rehabilitation Standards; fifteen have been rehabilitated to code standards only.

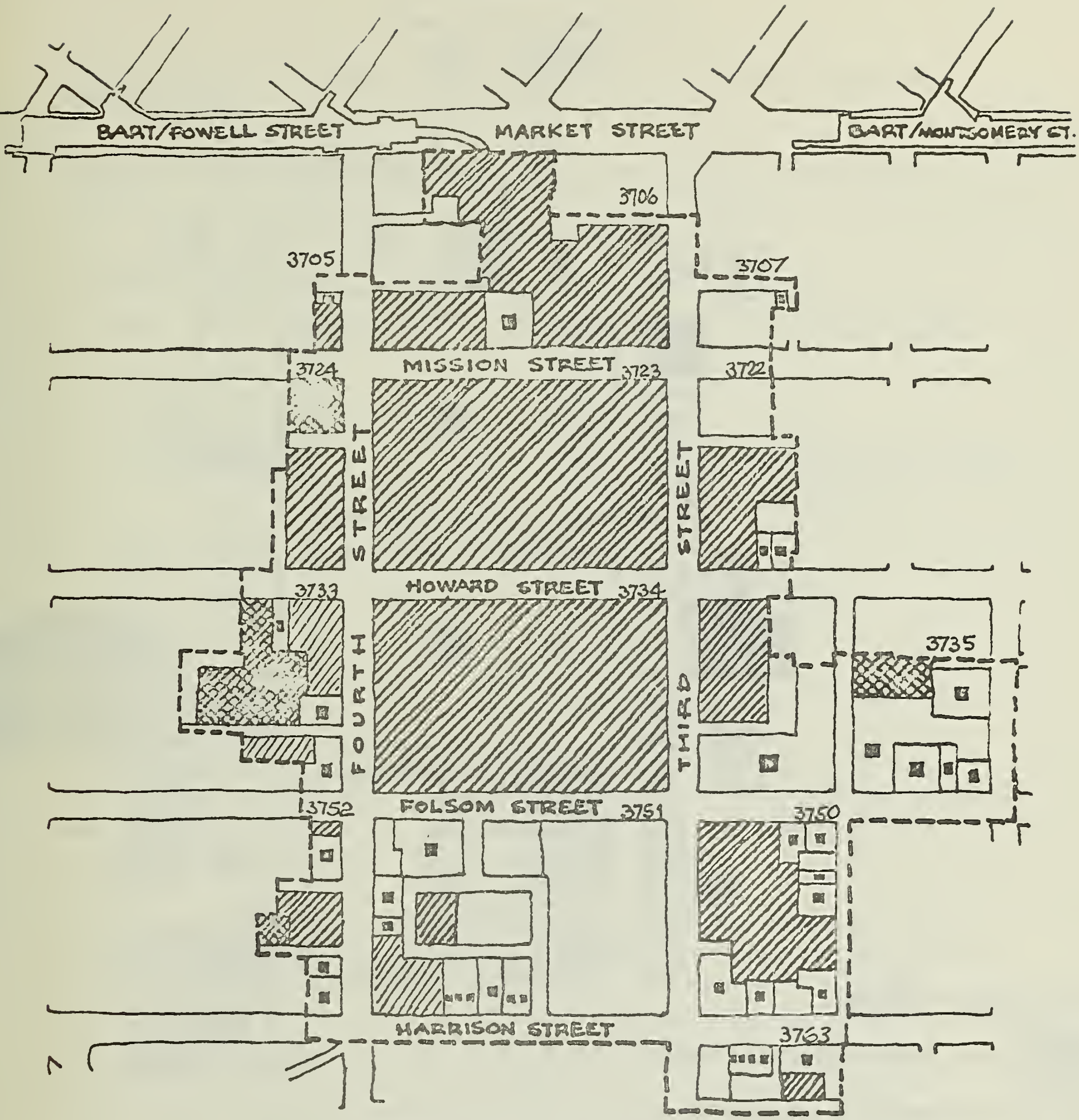
Completed new construction in the area involves two rights-of-way and three sites, including

- 276 units of public housing for the elderly in Clementina Towers (Block No. 3733);
- the expansion of the Fifth and Mission Street parking garage to include 316 additional parking spaces (Block No. 3724); and
- an eleven-story office building at 55 Hawthorne Street (Block No. 3735), completed under the owner participation provisions of California's Community Redevelopment Law.

In addition, construction is underway on the 258-unit elderly subsidized housing project sponsored by the Salvation Army (Block No. 3752), a portion of which extends into the project area. A total of 8 parcels have been conveyed by the Agency to private developers, and additional redevelopers have been selected for several other parcels, as shown on Exhibits 3 and 4.

Relocation activities have greatly reduced the number of residents in the Project area. However, the characteristics of the current population are essentially the same as those of the original population.

EXHIBIT 3



REDEVELOPMENT STATUS

▩ CONSTRUCTION COMPLETE/UNDER WAY

▨ REDEVELOPER SELECTED/DESIGNATED

▣ OWNER RETENTION/REHABILITATION

☐ OTHER PARCELS

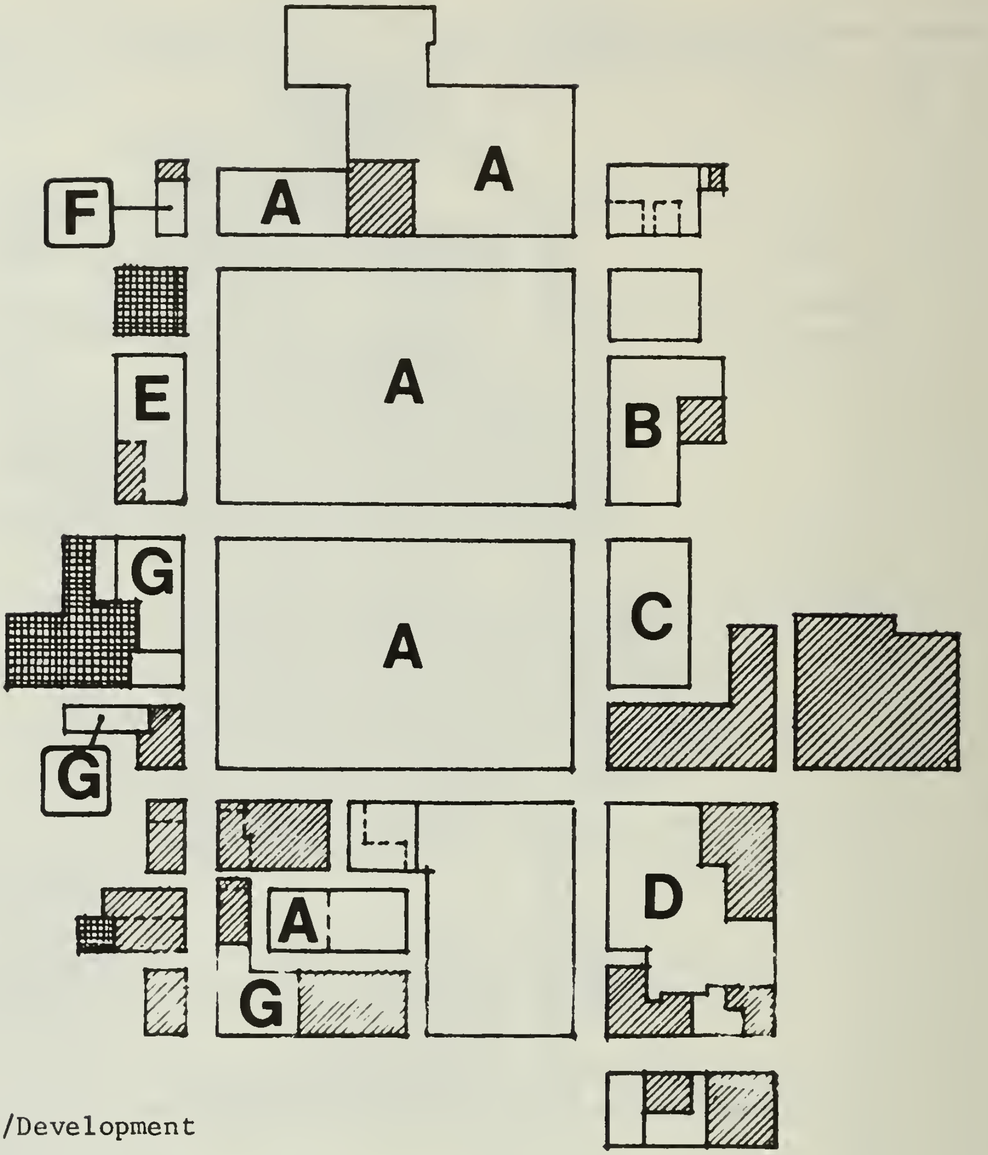
3706 ASSESSOR'S BLOCK NUMBER

DECEMBER 1973

YERBA BUENA CENTER

EXHIBIT 4

DESIGNATED DEVELOPERS
December 1973



YERBA BUENA CENTER

▨ Owner Rentention/Development

☐ Development Programmed

A - Arcon-Pacific; City and County of San Francisco

B - Contintental Development Corporation

C - Haas & Haynie Corp.

D - Taylor Woodrow

E - Nishkian/Western Growth Fund

F - San Francisco Community College District

G - Todco

▦ Construction complete/under way

The majority are single (95%), male (94%), and over the age of 45 (74%).[12]

The breakdown of current land uses in the Project area is as follows:

# Acres	Uses
30.8	Streets, alleys and other public rights of way
2.8	Residential
3.0	Hotels
38.1	Other commercial, including approx. 25.4 acres in parking lots and garages
4.3	Industrial
1.8	Public and Institutional
1.9	Vacant Buildings
4.6	Vacant Lots
87.3	TOTAL

The Urban Renewal, or land preparation, activities in YBC are substantially completed. It is estimated by the City that an additional amount of $7,600,000 will be needed from HUD to complete all federally-funded renewal activities.[13]

The planning and programming of the central portion of the project (Assessor's Blocks 3723 and 3734 and portions of Blocks 3706 and 3751, hereafter referred to as the "Central Blocks") are nearly complete. A Master Plan for development has been prepared for this area by the City and County of San Francisco, and working drawings are substantially complete for the proposed Public Facilities. Central Block construction is currently projected to begin in July 1974, with total Project completion scheduled for December 1983, as shown on Exhibit 5.

The aerial photograph in Exhibit 6 depicts the current physical appearance of the Project area.

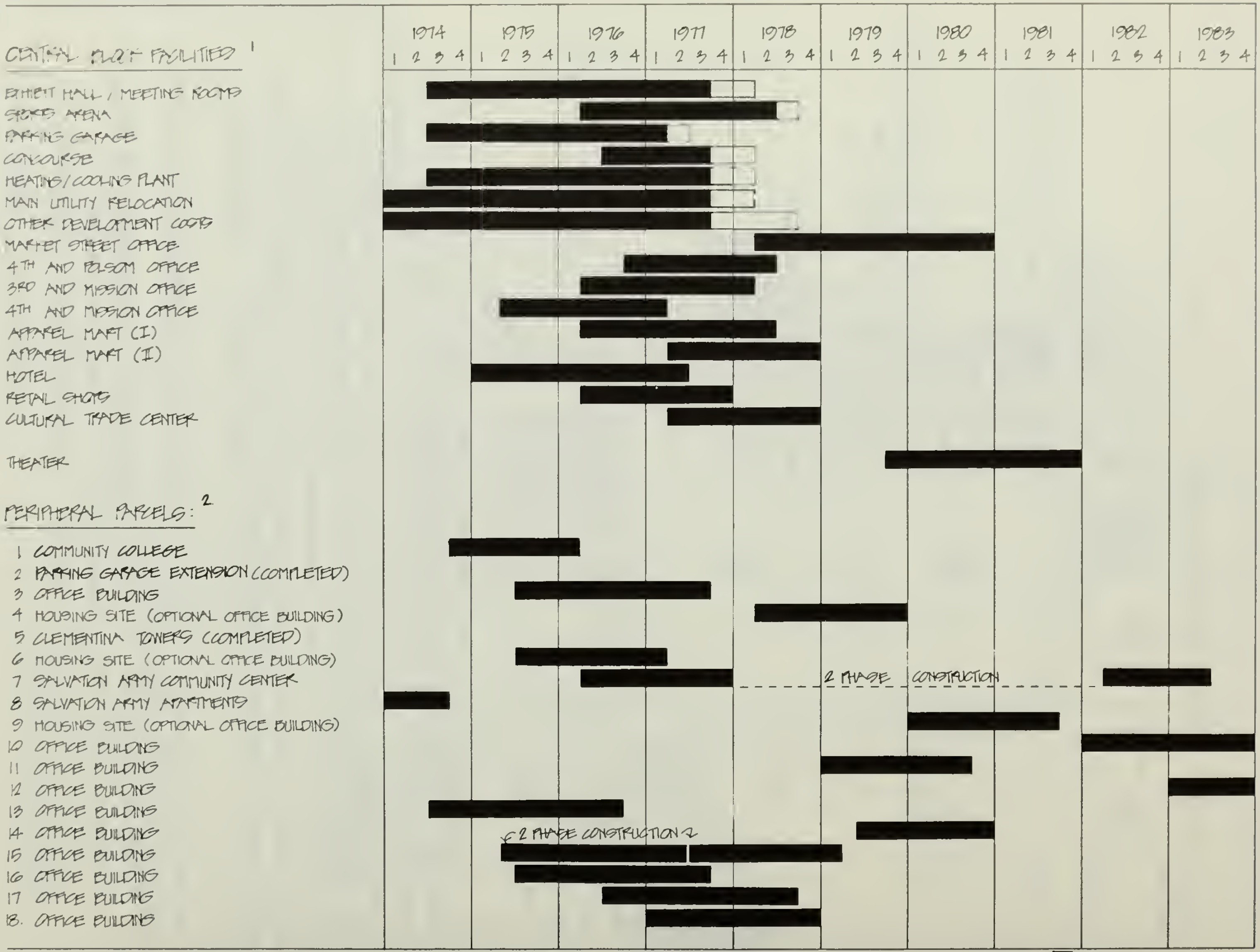
---

[12] - Refer to Section IV, D. of this Statement for a breakdown of the characteristics of the remaining YBC relocation workload.

[13] - Letter to HUD Secretary James T. Lynn from Mayor Joseph L. Alioto, July 9, 1973.

EXHIBIT 5

YERBA BUENA CENTER PROJECTED CONSTRUCTION SCHEDULE FROM 1974 - 1983

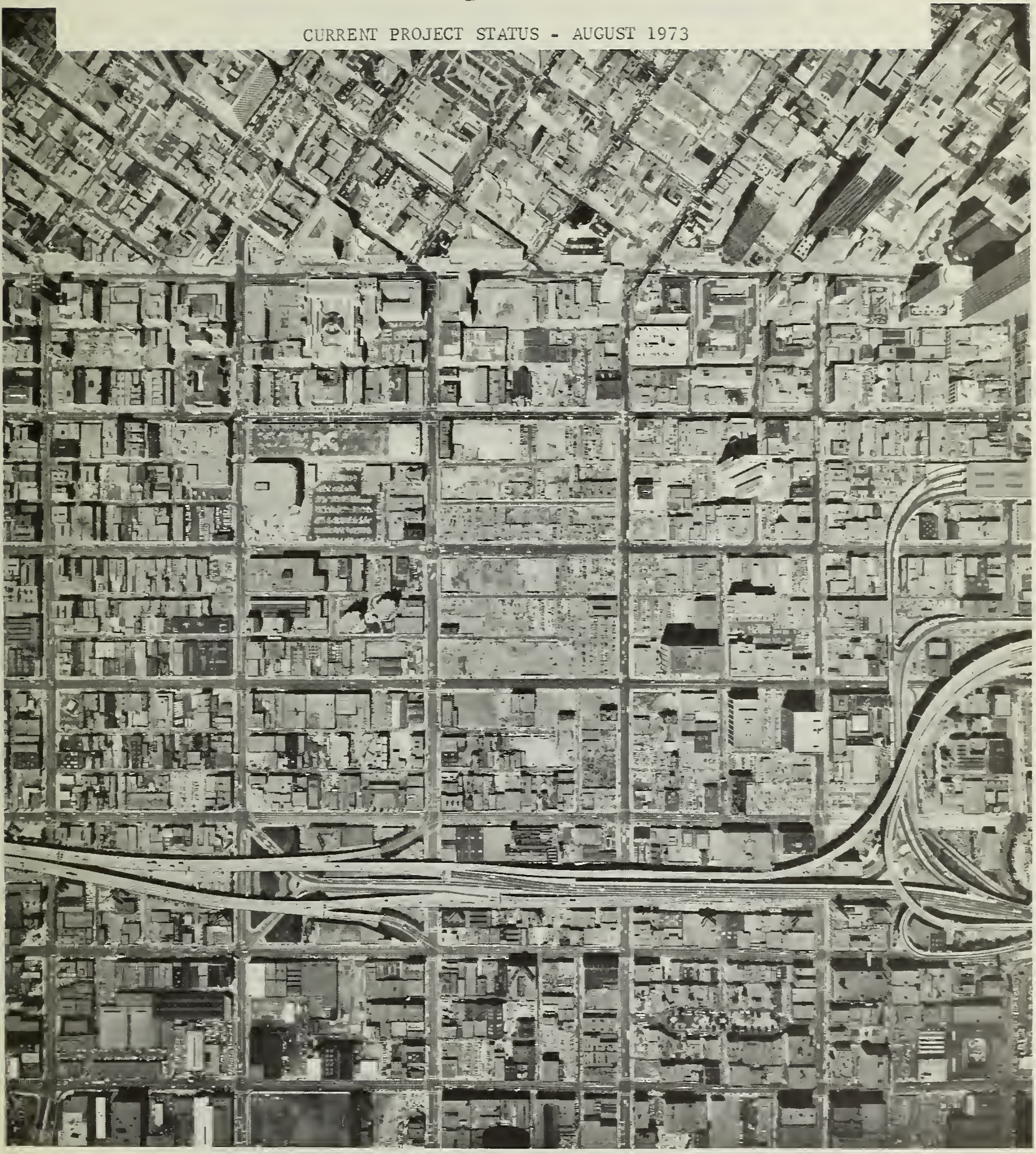


1. IF CONSTRUCTION OF THE PUBLIC FACILITIES IS PERFORMED IN TRIPLE SHIFTS, COMPLETION WILL BE EARLIER THAN UNDER A SINGLE SHIFT;
2. REFER TO EXHIBIT 15 FOR LOCATION OF PERIPHERAL BLOCK SITE NUMBERS

SOURCE: A.D. LITTLE AND URS RESEARCH CO., EIR, FIGURE I-5, AS AMENDED BASED UPON DELAYED CONSTRUCTION STARTS, REVISED BID SCHEDULES, AND DEVELOPER SELECTION IN THE PERIPHERAL BLOCKS

EXHIBIT 6

CURRENT PROJECT STATUS - AUGUST 1973



E. Yerba Buena Center Urban Renewal Plan, 1966

As stated in the amended Urban Renewal Plan, adopted by the Board of Supervisors on April 25, 1966, the Project's objectives are the following:

- Provide the framework within which restoration of the economics and social health of the Project and its environs will be accomplished by private actions.
- To assist in the suitable re-establishment within and without the Project Area of businesses and institutions which will be displaced by the Project and to provide adequate housing opportunities for families and single individuals.
- Guide development towards the production of satisfying environment preserving and enhancing the unique aesthetic and cultural qualities of the City.
- Stimulate and attract private investment, thereby improving the City's economic health, employment opportunities, and the tax base.

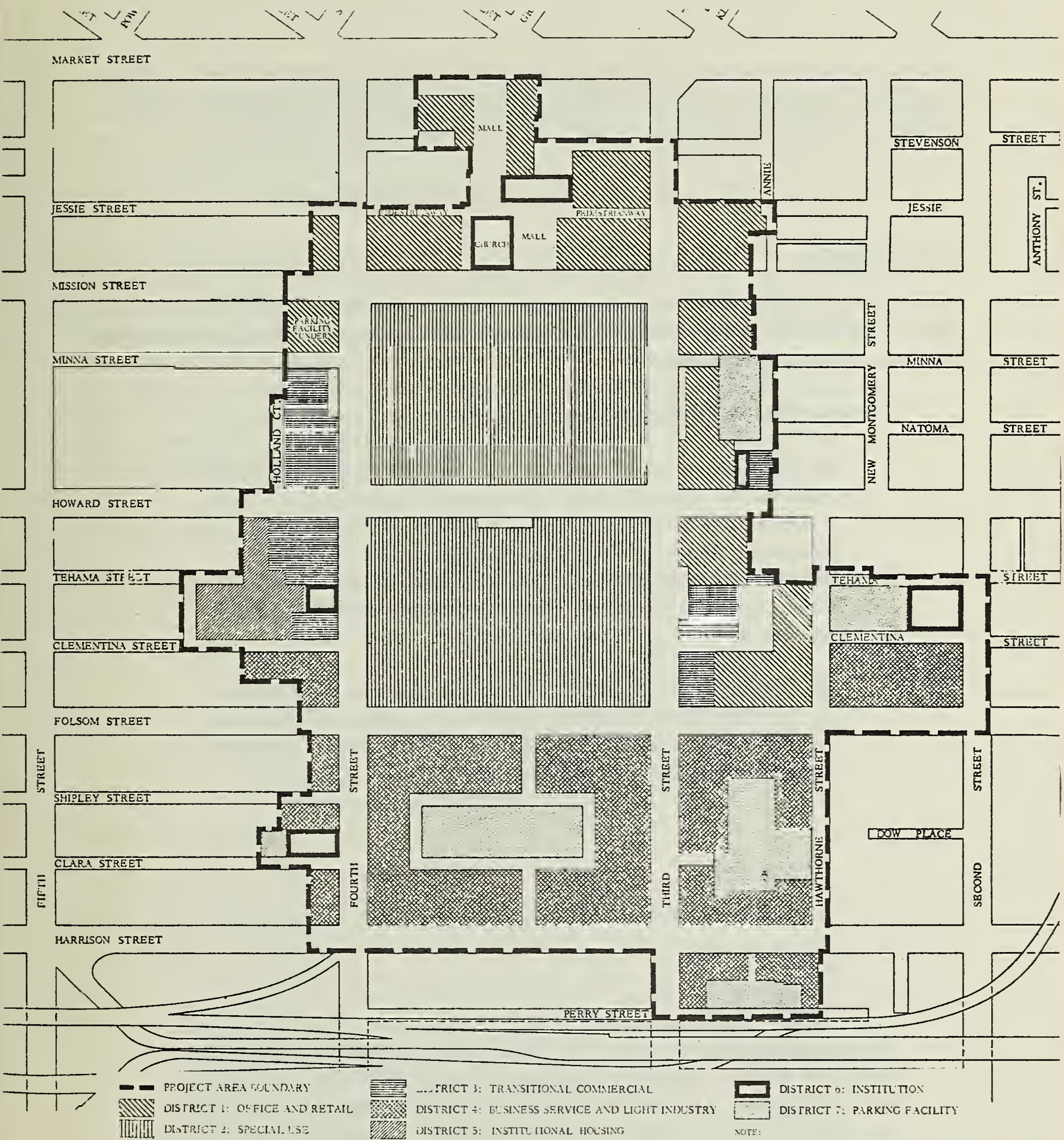
The 1966 Land Use Plan[14] provided for redevelopment predominantly in office and retail, special use, and business services and light industry. One parcel was designated as institutional housing.

Assessor's Blocks 3723 and 3734 (between Mission and Folsom Streets) were designated as Land Use District 2, Special Use, while the portion of Block No. 3706 which is included in the Project was designated as Land Use District 1, Office and Retail. These blocks comprise the 25-acre area known as the "Central Blocks."

The 62 acres surrounding the Central Blocks, which include all of Assessor's Block No. 3751 and portions of Block Nos. 3705, 3707, 3722, 3724, 3733, 3735, 3750, 3752 and 3763 (hereafter referred to as the "Peripheral Blocks") were designated for private development with permitted uses ranging from Land Use District 1 through 7. (Refer to Exhibit 7 for the 1966 Land Use Pland; Refer to Appendix B for a fuller description of the permitted land uses.)

14- The original Urban Renewal Plan included two optional Land Use Plans, A and B. By Ordinance No. 201-71, dated July 26, 1971, the Board of Supervisors approved the deletion of Land Use Plan B. Since HUD approved the pursuit of either Plan, and the City has opted for "A", discussion in this Section will pertain to Land Use Plan A.

EXHIBIT 7



The property bounded by Mission, Fourth and Minna Streets is intended for use as a public parking facility to be owned by the City and County of San Francisco.

MAP 2: LAND USE PLAN A (1966)
YERBA BUENA CENTER REDEVELOPMENT PROJECT AREA D-1

HUD granted approval of this Urban Renewal Plan in December 1966. Since that time, the Agency and the Board of Supervisors have approved two Plan Changes, portions of which are now before HUD for consideration.

F. Urban Renewal Proposed Plan Changes

Plan Change I

On March 31, 1971, the Redevelopment Agency submitted Plan Change I for the YBC Urban Renewal Plan to HUD for review and approval. This included the following Plan adjustments:

- the deletion of Land Use Plan B[15];
- amendment of Land Use Plan A, changing a portion of the western Peripheral Blocks between Minna and Clementina (Blocks 3724 and 3733) from Transitional Commercial to Downtown Support Use, and changing the eastern Peripheral Block between Howard and Folsom (Block 3735) from a mixture of office, retail, commercial, and light industrial uses to Downtown Support; and
- amendment of the Land Use Districts and the Standards for Development, to bring them into conformity with the zoning districts of the City Planning Code, and to add a hotel as a permitted use District.[16]

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15 - As explained above, the original Plan contained two optional land use plans, A and B. The latter designates Block No. 3734 as transitional commercial, business service and light industry and as the site of a large parking facility. Land Use Plan A designates this Block for Special Use (i.e., the south block of the Central Blocks complex).

16 - The original Standards for Development and Plan Change I are attached as Appendices B and C, respectively.

On July 7, 1971, HUD notified the Agency that the proposed changes were acceptable, and that HUD did not object to their adoption, with the reminder that "the amendment relating to the inclusion of transient housing as a permitted use is subject to the provisions of Section 106(g) of the Housing Act of 1949, as amended."[17]

The proposed Plan Change and an updated transient housing study,[18] were submitted to the Board of Supervisors in July 1971. By Resolution No. 406-71, the Board concurred in the need for transient housing in YBC, and by Ordinance No. 201-71 adopted the Plan Changes. Both measures were certified on August 13, 1971. Although, the updated transient housing study was subsequently submitted to HUD, no final HUD ruling was made, since the Project was subject to litigation at the time. Therefore, a final determination by HUD is still pending on the proposed hotel use in the Project area.

Plan Change II

The Agency submitted a second series of Plan adjustments to HUD on May 21, 1973.[19] These included:

- Expansion of the "Summary of Proposed Actions" which states measures by which the Agency will remedy or cause to be remedied conditions causing blight; added to this summary is Subparagraph 11 "Payment for site acquisition and the installation and construction of certain Public Facilities; "

---

17 - Section 106(g) states that:

> "No provision permitting the new construction of hotels or other housing for transient use in the redevelopment of any urban renewal area under this subchapter shall be included in the urban renewal plan unless the community in which the project is located, under regulations prescribed by the Secretary, has caused to be made a competent independent analysis of the local supply of transient housing and as a result thereof has determined that there exists in the area a need for additional units of such housing."

18 - On July 9, 1971, Development Research Associates completed an updating of their previous transient housing study for the Yerba Buena Center, originally prepared in June 1970.

19 - Refer to Appendix D for complete wording of Proposed Plan Change II.

- The addition of tax allocation provisions to the Urban Renewal financing plan which would allow a portion of taxes received from property within the Project area to be allocated to a special fund of the Redevelopment Agency to retire any indebtedness incurred in financing the Project;

- The land use reclassification of three sites within the Project boundaries as shown on Exhibit 8 and described as follows:

  1. Block 3733, Lots 1, 6, 7, 72, 89, 90 and related vacated streets from District C, Downtown Support, to District D Housing, provided that these lots are also developed and used for commercial use;
  2. Block 3733, Lots 37, 38, 39, 49, 41A, 42, 43 and related vacated streets from District E, Business Services and Light Industry, to District D, Housing; and
  3. Block 3751, Lots 37, 38, 39, 40, 42, 43, 44, 45, 46, 77 and related vacated streets from District E Business Services and Light Industry to District D Housing.

The proposed change in land uses was developed as a major component of the court settlement between the Redevelopment Agency and the Tenants and Owners in Opposition to Redevelopment (TOOR), signed in May 1973.[20]

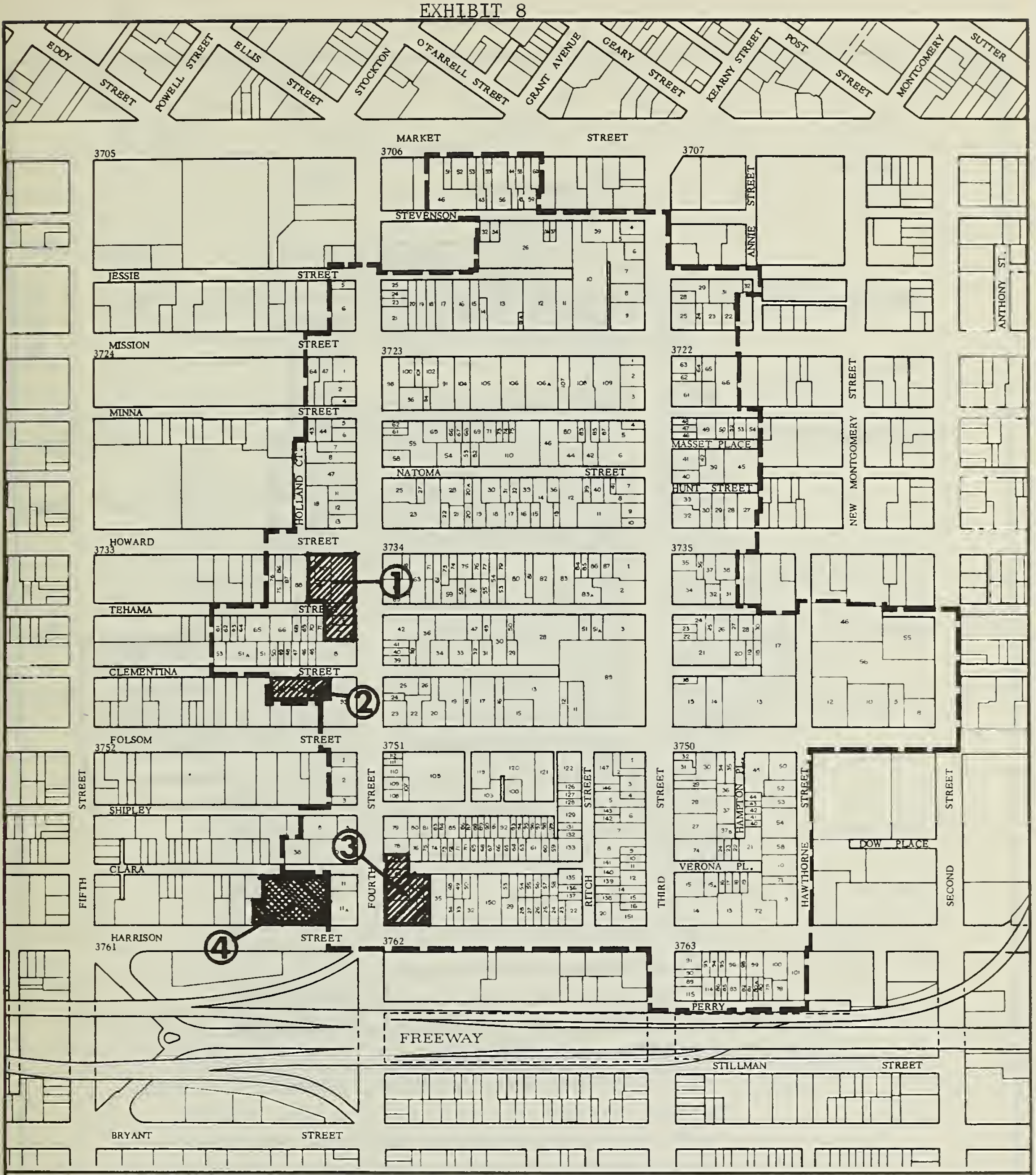
Plan Change II was adopted by the Redevelopment Agency Board on October 1, 1973, and by the Board of Supervisors on October 9, 1973.

Although the first two aspects of the proposed change are non-federal financial matters and not subject to HUD review, the latter land use change requires HUD approval.

---

20 - The court settlement also provided for the rezoning of a fourth site for housing outside the Redevelopment Project boundaries; municipally-financed housing is to be provided on these sites for low-income elderly persons. The TOOR litigation and settlement are explained more fully in Section III, H. of this Statement.

EXHIBIT 8



PROPOSED HOUSING SITES

YERBA BUENA CENTER

REDEVELOPMENT PROJECT AREA D-1

▨ Proposed sites w/in boundaries

▩ Lincoln School site; outside boundaries

▬ ▬ PROJECT AREA BOUNDARY

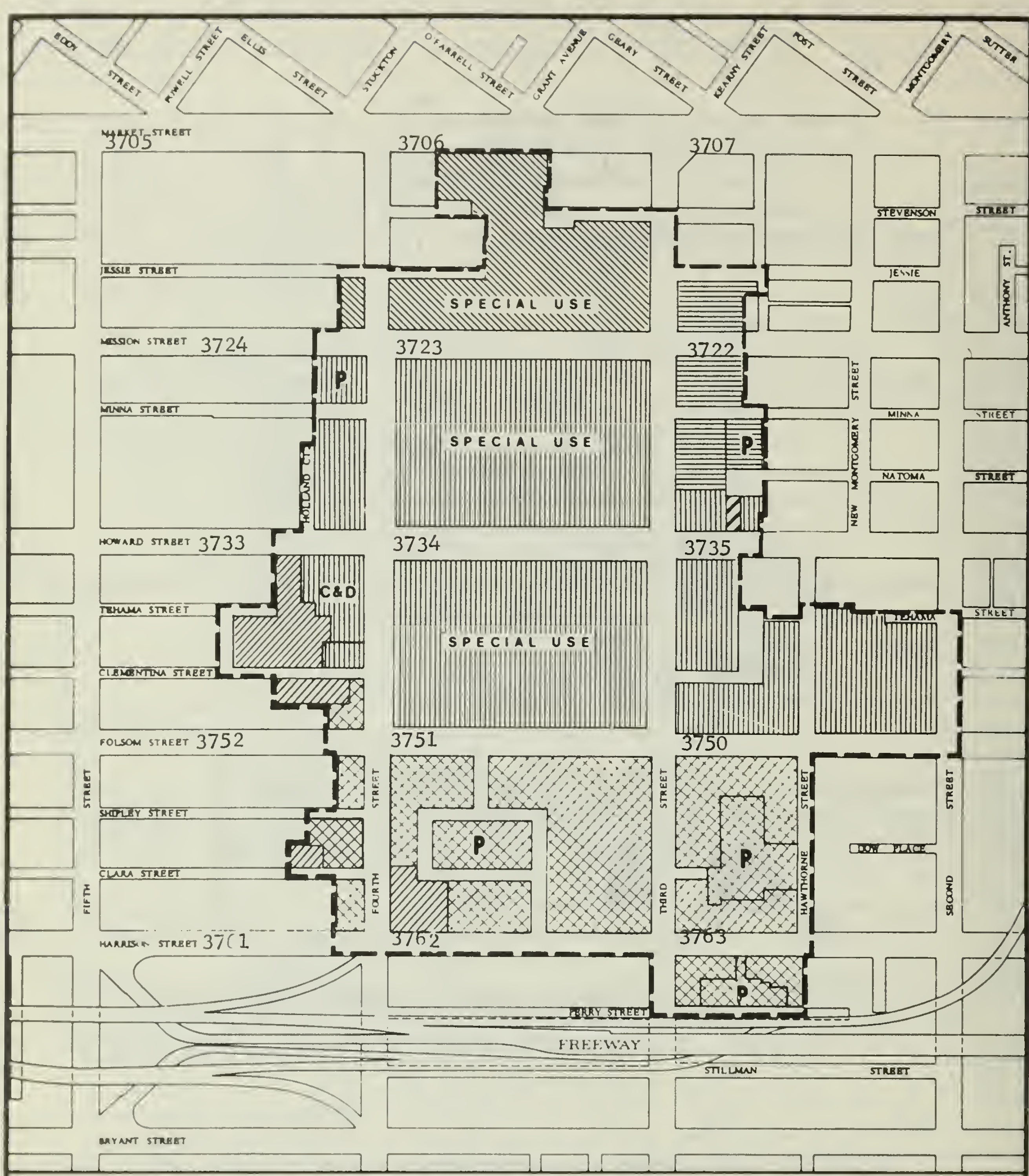
3700 ASSESSOR'S BLOCK NUMBER

☐ LOT NUMBER

0 FEET 200

JULY 1971

SAN FRANCISCO REDEVELOPMENT AGENCY



YERBA BUENA CENTER

REDEVELOPMENT PROJECT AREA D-1

EXHIBIT 9

LAND USE PLAN (1973)

DISTRICTS :

▤ A - DOWNTOWN OFFICE
▧ B - DOWNTOWN RETAIL
▥ C - DOWNTOWN SUPPORT
▨ D - HOUSING
▩ E - BUSINESS SERVICES & LIGHT INDUSTRY
▬ ▬ PROJECT AREA BOUNDARY
▨ CITY OWNED
P PARKING FACILITY

0 FEET 200

N

SAN FRANCISCO REDEVELOPMENT AGENCY

EXHIBIT 10

San Francisco Redevelopment Agency
Yerba Buena Center Redevelopment Plan, October 9, 1973
Districts and Permitted Uses

Land Use District	Permitted Principal Use (1,2,3,4,7,8,9)	Maximum Floor Area Ratio (5,6)
A	Business and professional offices; retail stores; personal services establishments; restaurants; clubs; theaters; meeting halls; churches; institutional and recreational buildings; offstreet parking structures.	14:1
B	Same as District A.	10:1
C	Same as District A plus laboratories and wholesale establishments not including warehouses; except that in blocks designated for Special Use permitted uses include only those allowed in District A plus exhibit hall; sports arena; hotel providing accommodations for transient guests; and radio and television studios.	7:1
D	Housing specifically designed for occupancy by mature adults including offstreet parking and supporting recreational and other facilities.	7:1
E	Same as District A plus laboratories; wholesale establishments; printers; radio and television studios; building services and repairs; storage buildings; and light industries involving only assembly, packaging, repair or processing of previously prepared materials.	5:1

On July 18, 1973, HUD notified the Redevelopment Agency that

> "It is our determination, based upon the current state of applicable environmental law, that HUD approval of the proposed changes, taken together with the outstanding plan change request of August 1971, would constitute a 'major federal action' under the intent of the National Environmental Policy Act (NEPA) of 1969.
>
> "Therefore, it will be necessary for HUD to conduct a full environmental clearance review of the Yerba Buena Center Project in accordance with NEPA Section 102(2)(c) prior to taking final action on the proposed changes."

HUD's environmental review is of the entire Project as currently proposed. (Refer to Exhibits 9 and 10 for the 1973 Land Use Plan and Permitted Uses, respectively.)

G. Currently Proposed Development

Central Blocks - Public Facilities

A detailed master plan, comprised of public and private uses, has been developed by the City and the Agency for the development of the 25 acres within the Central Block area. (Refer to Exhibits 11 through 14.)

The planned public development[21] includes a parking garage, a convention or exhibit hall, a meeting room complex, a multi-purpose arena, and a pedestrian concourse. Public development also includes a Central Heating and Cooling Plant to service the area, which will be located in the Peripheral Blocks south of the Central Block development.

The parking garage includes a total of approximately 776,000 square feet on two underground levels, with accommodations for approximately 1,800 parking stalls. It will extend under Howard Street, encompassing the western half of the two blocks between Mission and Folsom Streets.

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[21] Refer to Yerba Buena Center Public Facilities submitted by Thomas J. Mellon, Chief Administrative Officer to the Mayor and Board of Supervisors, March 6, 1972.

The exhibit hall, also underground, is to be constructed on top of the parking garage. It is designed to reach a maximum interior height of three stories, with net clear floor space of 330,000 square feet. There will be four movable walls to adjust available space to accommodate exhibits and shows of varying sizes and banquets of up to 5,000 persons.

The meeting rooms are to be constructed on two levels in the block between Howard and Folsom Streets. A series of eleven rooms will be located on the level of the Exhibit Lobby immediately above the dock service area. A second group of rooms is to be constructed on the concourse level directly above the Exhibit Hall. Encompassing a total of approximately 87,000 square feet, the rooms will vary in size, with movable partitions to accommodate small groups as well as assemblies up to 4,500 persons.

Associated with the exhibit hall/meeting room complex are approximately 50,000 square feet for concessions such as snack bars, food preparation, bars and restaurants; approximately 104,000 square feet for underground ramps and loading docks; approximately 47,000 square feet for storage and auxiliary spaces such as offices and restrooms; and approximately 59,000 square feet for public lobbies.

The multi-purpose arena is to be located on the eastern portion of the block between Howard and Folsom Streets (across the concourse from the convention complex). It will encompass approximately 435,000 gross square feet, divided almost equally between main arena space and lobby/auxiliary areas. The main arena is to reach eight stories in interior height rising approximately 116 ft. above sidewalk level at Folsom Street and 103 ft. at Howard Street. It is to provide permanent seating for 14,500 persons, with accommodations for an additional 5,000 in portable seating.

The pedestrian concourse, encompassing approximately 510,270 square feet, is to extend on various levels from the Bay Area Rapid Transit (BART) Station on Market Street, above Mission and Howard Streets by means of pedestrian overpasses, to a multi-level plaza in the south block between Howard and Folsom Streets. As planned, the concourse is to be approximately 1,800 feet in length and varying from 75 feet to 200 feet in width. It is to include landscaping, paving, art objectives, a public fountain, a park surrounding St. Patrick's Church in the north block and an urban plaza 300 feet by 200 feet in the central block.

Central Blocks - Private Facilities

The currently planned private facilities in the Central Blocks are projected to include three office buildings, retail shops, a legitimate theater, and the retention of St. Patrick's Church in the north block; a hotel, an apparel mart, related parking, a potential Cultural Center, and retail shops in the central block; and an office building in the south block. An airline terminal was originally planned for the north block area, but has recently been deleted from the Master Plan. No commitment has been received for the development of the theater, but all other private facilities are to be developed by one major developer.

As currently planned, the total office space in the three Central Blocks will be approximately 2,275,000 square feet. Retail space, including the trade center, is estimated at 343,000 square feet, with an additional 1,086,000 square feet projected for the six-story wholesale apparel mart. The private garage beneath the apparel mart is planned to accommodate 600 parking stalls, and the hotel is to contain 700 rooms.

Peripheral Blocks

Land use plans for the Peripheral Blocks permit primarily business services and light industry on the blocks south of Folsom Street, and a mixture of uses on the blocks north of Folsom. Development in this area was planned as a combination of retention/rehabilitation structures and new construction.

The major development north of Folsom, as well as a portion of the development south of Folsom, is projected as office building use to be developed, or rehabilitated by private interests. The notable exceptions to this are the Community College (Site No. 1 on Exhibit 15), the extension of the Fifth and Mission Streets public parking garage (Site No. 2 on Exhibit 15), and the existing and proposed housing (Site Nos. 4, 5, 6, 8 and 9 and Exhibit 15).[22]

The Central Heating and Cooling Plant servicing the Public Facilities is to be located in Block 3751 between Harrison and Folsom Streets.

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[22] Housing Construction on Site No. 4 is completed; construction on Site No. 8 is underway; and the remaining are proposed sites.

EXHIBIT 11

CENTRAL BLOCKS DESIGN

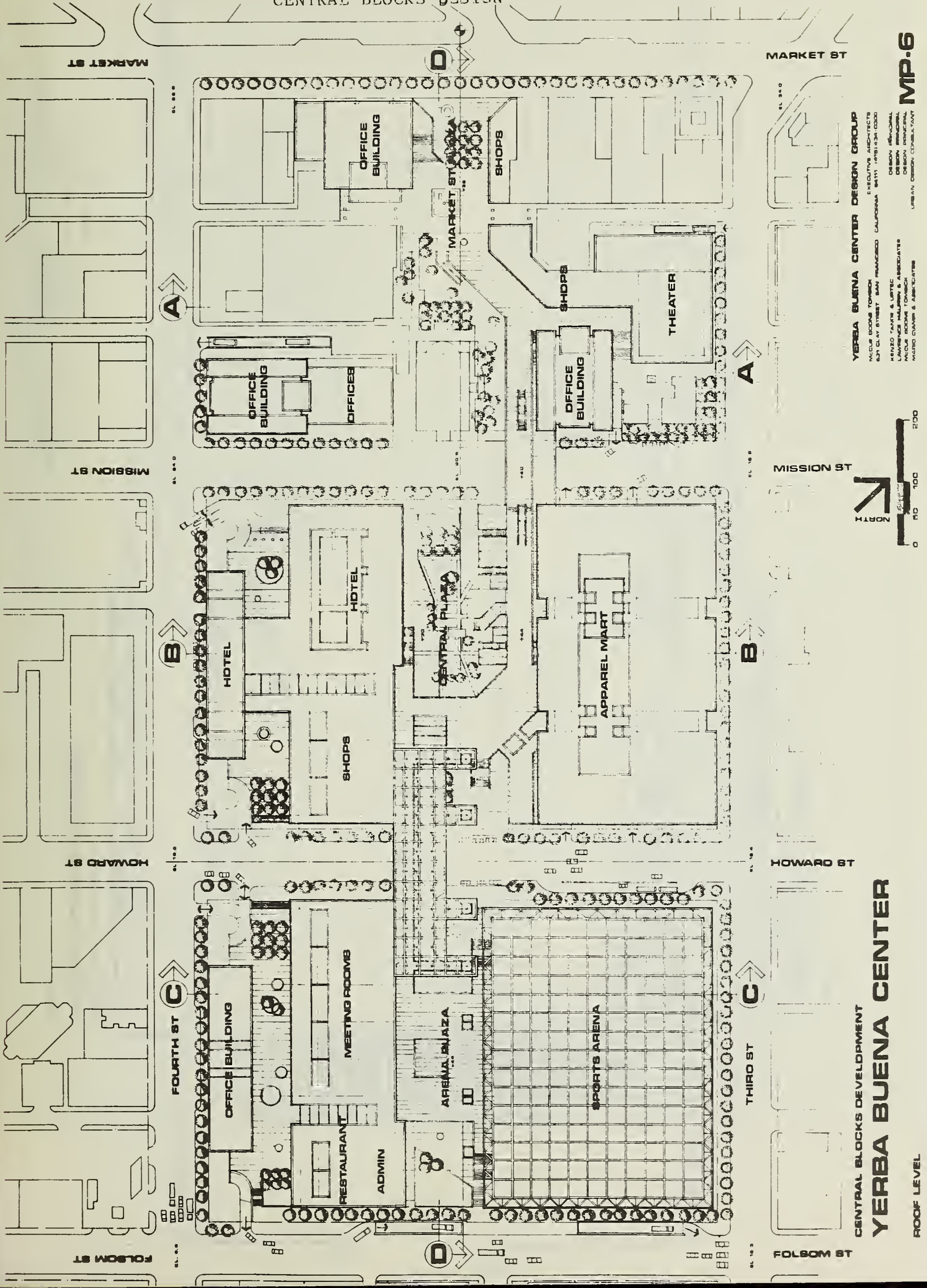

MARKET ST
MISSION ST
HOWARD ST
FOLSOM ST
FOURTH ST
THIRD ST
A
B
C
D
OFFICE BUILDING
SHOPS
MARKET ST
OFFICE BUILDING
OFFICES
SHOPS
THEATER
OFFICE BUILDING
HOTEL
HOTEL
CENTRAL PLAZA
APPAREL MART
SHOPS
MEETING ROOMS
OFFICE BUILDING
ARENA PLAZA
SPORTS ARENA
RESTAURANT
ADMIN
NORTH
0
50
100
200
YERBA BUENA CENTER DESIGN GROUP
McCUE BOONE TOMSICK EXECUTIVE ARCHITECTS
631 CLAY STREET SAN FRANCISCO CALIFORNIA 94111 (415) 434-0000
KENZO TANGE & URTEC DESIGN PRINCIPAL
LAWRENCE HALPRIN & ASSOCIATES DESIGN PRINCIPAL
McCUE BOONE TOMSICK DESIGN PRINCIPAL
MARIO CIAMPI & ASSOCIATES URBAN DESIGN CONSULTANT
MP-6
CENTRAL BLOCKS DEVELOPMENT
YERBA BUENA CENTER
ROOF LEVEL

EXHIBIT 12

CENTRAL BLOCKS DESIGN

Source: Blue Book

View Northward from Folsom Street

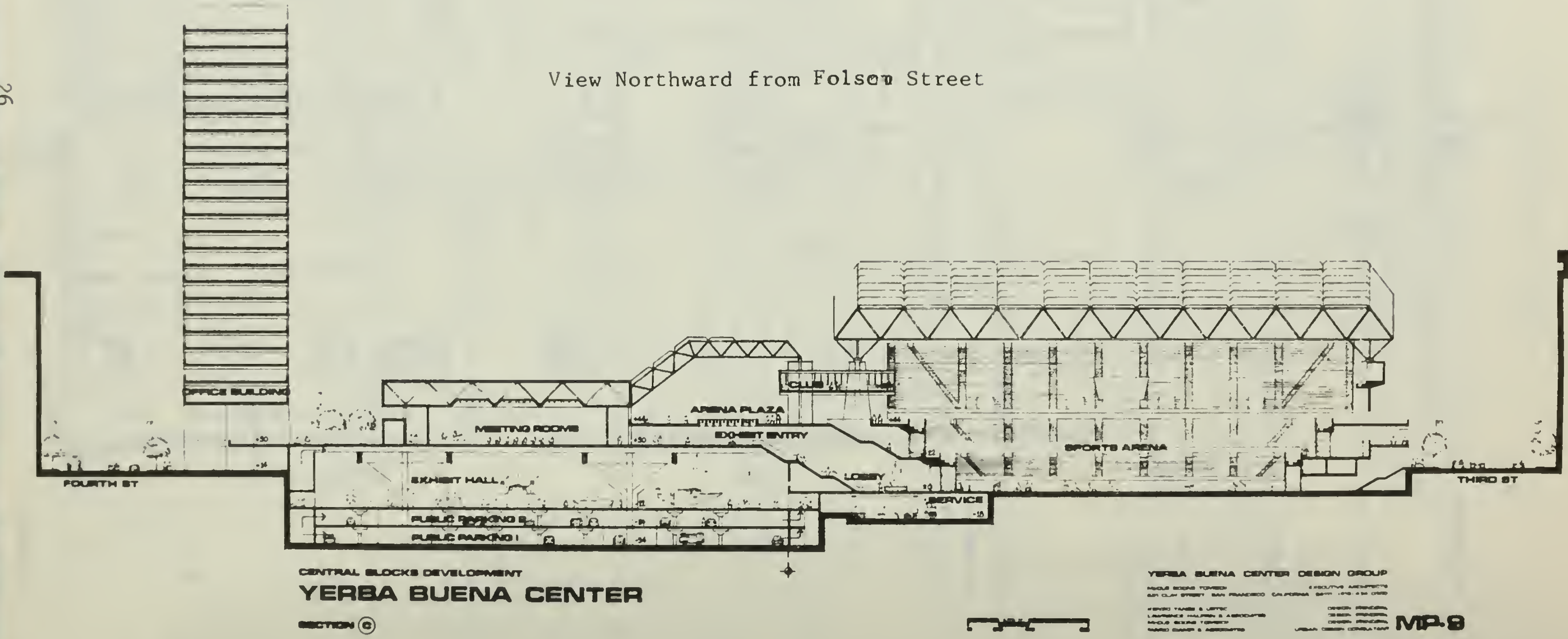


EXHIBIT 13

CENTRAL BLOCKS DESIGN

Source: Blue Book

View Northward from Howard Street

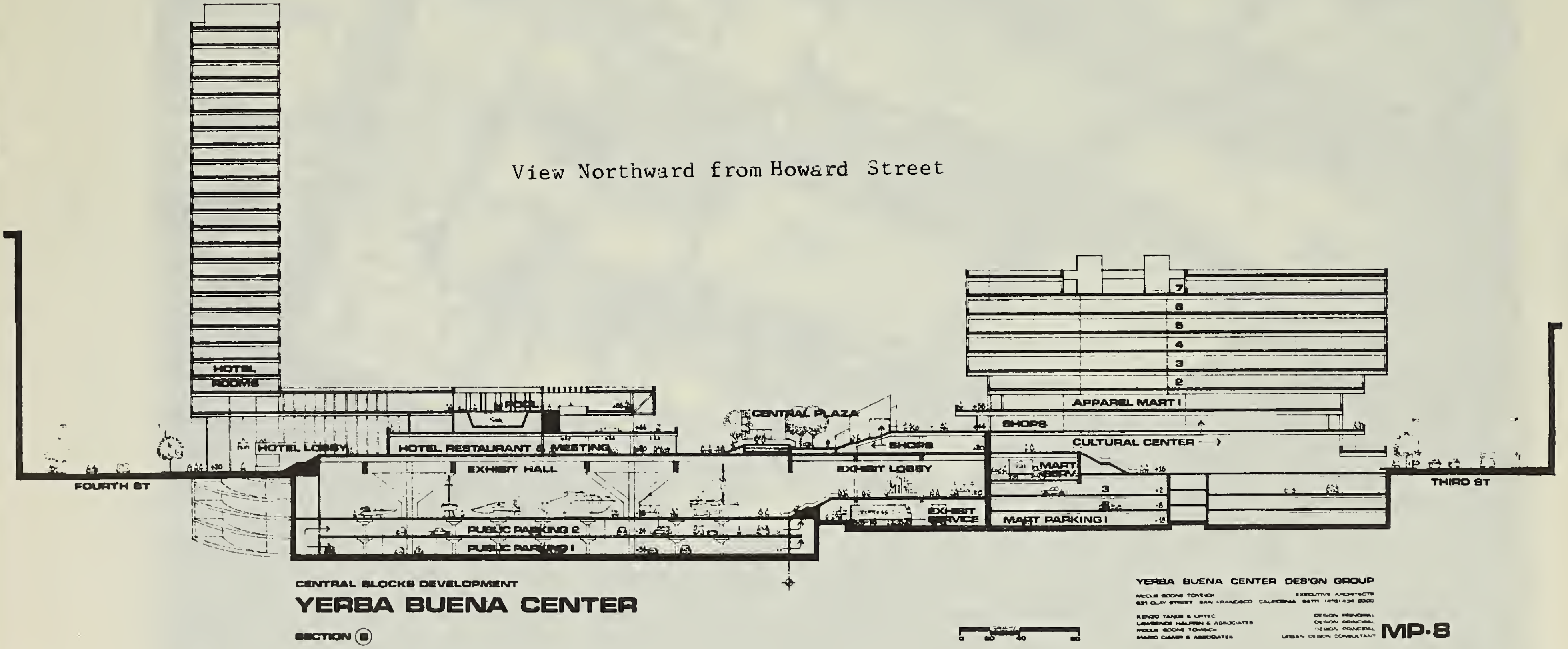
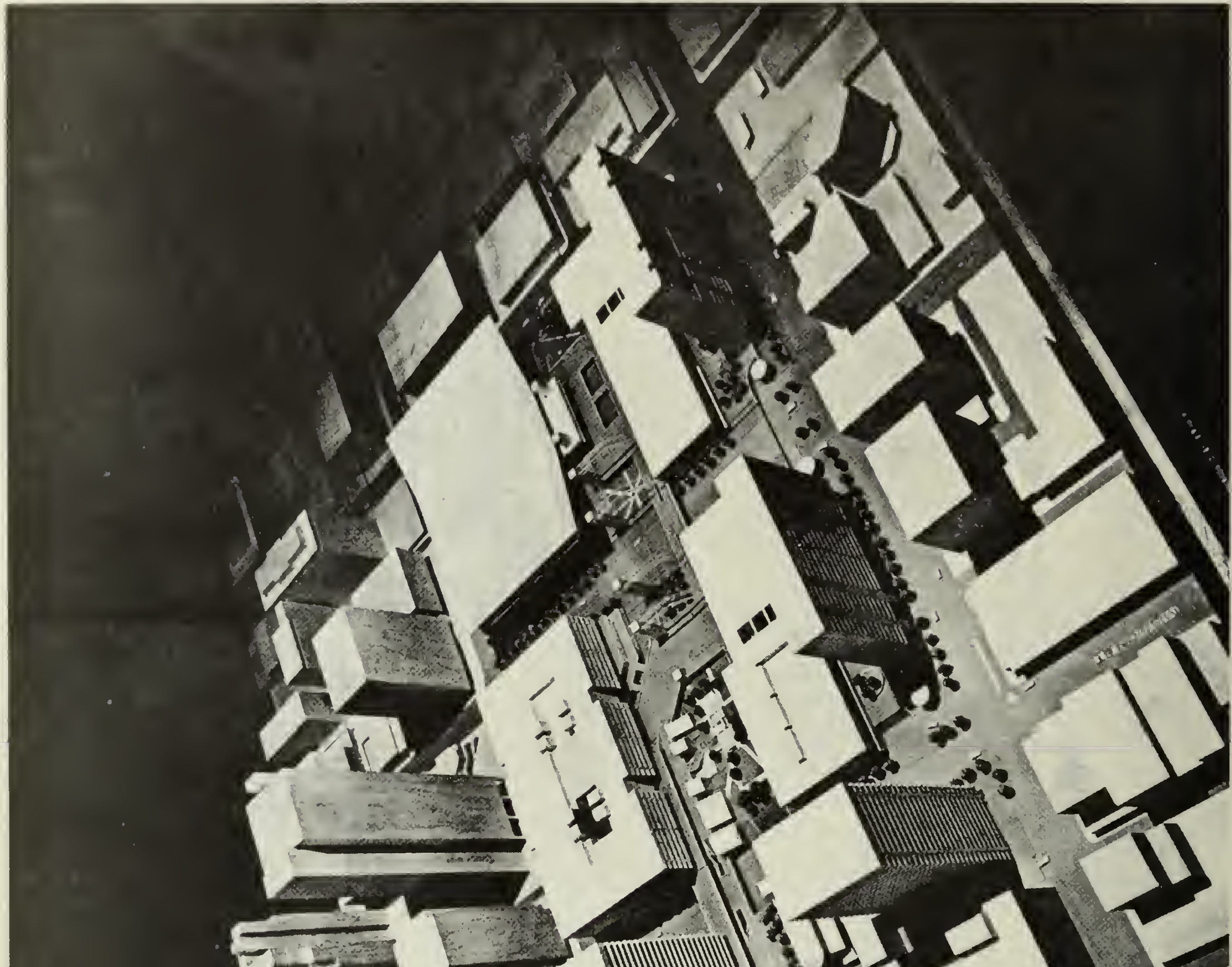

HOTEL ROOMS
HOTEL LOBBY
POOL
HOTEL RESTAURANT & MEETING
EXHIBIT HALL
PUBLIC PARKING 2
PUBLIC PARKING 1
CENTRAL PLAZA
SHOPS
EXHIBIT LOBBY
EXHIBIT SERVICE
7
6
5
4
3
2
APPAREL MART I
SHOPS
CULTURAL CENTER
MART SERV.
3
MART PARKING I
FOURTH ST
THIRD ST
CENTRAL BLOCKS DEVELOPMENT
YERBA BUENA CENTER
SECTION B
YERBA BUENA CENTER DESIGN GROUP
McCUE BOONE TOMSICK EXECUTIVE ARCHITECTS
831 CLAY STREET SAN FRANCISCO CALIFORNIA 94111 (415) 434 0300
KENZO TANGE & URTEC DESIGN PRINCIPAL
LAWRENCE HALPRIN & ASSOCIATES DESIGN PRINCIPAL
McCUE BOONE TOMSICK DESIGN PRINCIPAL
MARIO CIAMPI & ASSOCIATES URBAN DESIGN CONSULTANT
MP-8

EXHIBIT 14



CENTRAL BLOCKS DESIGN

Source: Blue Book

Following is a breakdown of the projected uses for the Peripheral Blocks:[23]

Use	Size
Offices (new)	4,281,200 sq. ft.
Offices (rehabilitated)	262,470 sq. ft.
Residential (new completed)	276 units[24]
Residential (new)	400 units
Industrial (rehabilitated)	42,860 sq. ft.
Retail and general commercial (new)	113,880 sq. ft.
Retail and general commercial (rehabilitated)	3,325 sq. ft.
Parking (completed) (new/rehabilitated)	737 spaces
Parking (planned/not completed) (off-street)	516 spaces
Parking (planned/not completed) (on-street)	181 spaces
Office (code conforming at time of plan approval)	546,500 sq. ft.
Industrial (code conforming at time of plan approval)	3,800 sq. ft.
Retail and general commercial (code conforming at time of plan approval)	4,475 sq. ft.
Heating and Cooling Plant	-

23- Little, Arthur D., Inc., and URS Research Company, Draft Environmental Impact Report, on Yerba Buena Center, May 1973, p. S-10; adjusted to reflect substitution of housing for office development on Peripheral Sites 4, 6, and 9.

24- In addition to the completed 276 units, the Salvation Army elderly housing project currently under construction contains 258 residential units, a small portion of which will be within the Project boundaries.

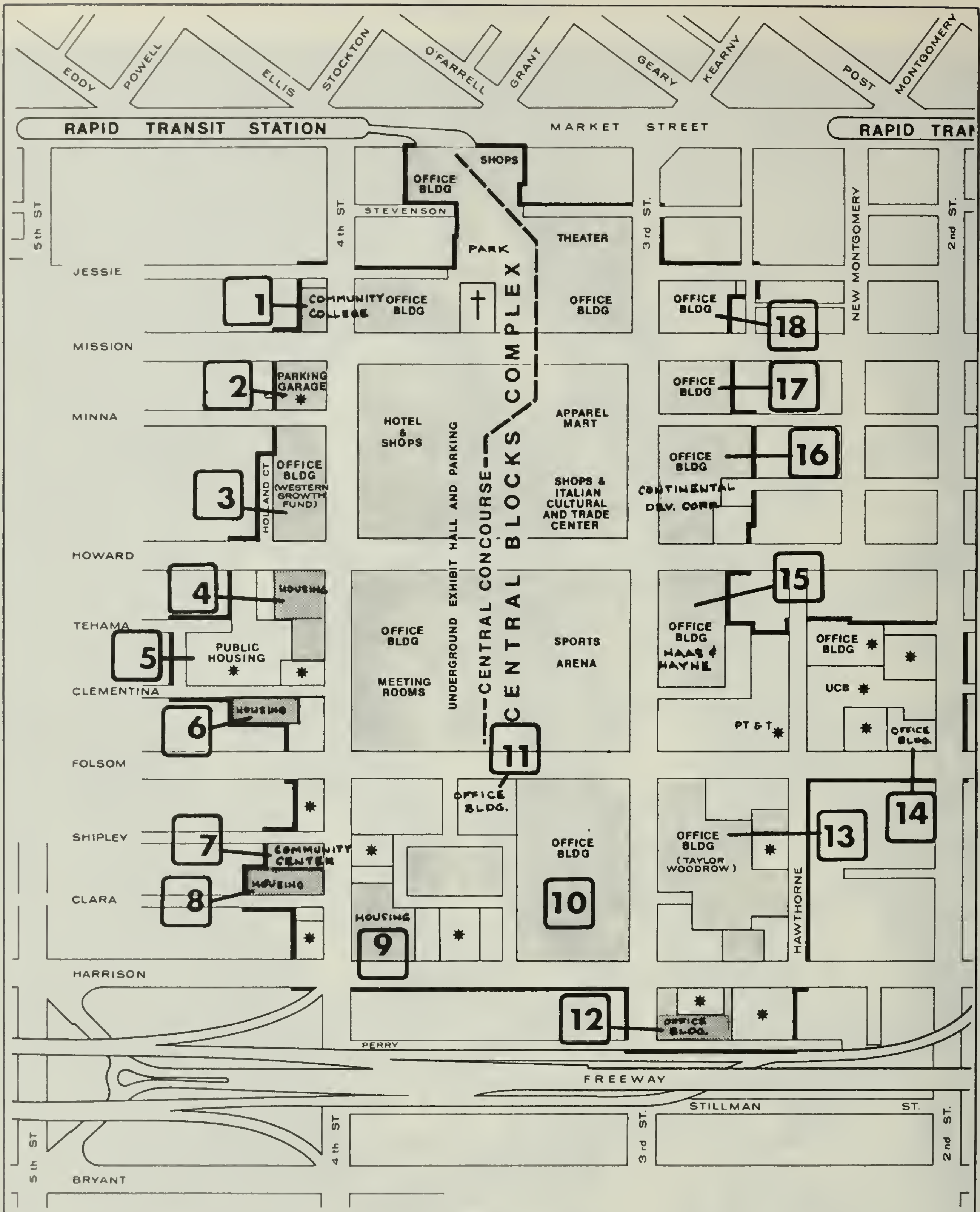


EXHIBIT 15

Note: Numbers are site numbers

* Completed (Construction/Rehabilitation)

YERBA BUENA CENTER

PROJECT ELEMENTS

December 1973

G. Public Opinion and Litigation[25]

The YBC Urban Renewal Project and proposed plan changes have been approved by the San Francisco Redevelopment Agency, the City Planning Commission, the Board of Supervisors and the Mayor. Other groups who have evidenced support of the Project through the public hearing mechanism or written communications inlcude the Hotel Employers Association, the Downtown Association of San Francisco, the San Francisco Convention and Visitors Bureau.

Support has also been expressed for the Project as amended by Plan Change II from groups who previously opposed the Project. These groups include Tenants and Owners in Opposition to Redevelopment (TOOR); District Council No. 5, Economic Opportunity Council (EOC); and the Filipino Brothers League.[26]

Opposition to the Project has come from various groups, generally on one or more of the following grounds:

- displacement of Project residents and property owners
- state and federal environmental clearance requirements
- method of financing the public facilities

This opposition has been manifested in several lawsuits involving HUD and/or the Agency including most significantly:

1) San Francisco Tomorrow et al. vs. Romney, 1972, calling for HUD to prepare Environmental Impact Statements, in compliance with NEPA, on YBC and two other Urban Renewal Projects in the Bay Area. In the case of YBC, it was determined on January 18, 1973, that a full EIS was not required, given the circumstances at that time.

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[25] - The list of proponents and opponents is not intended to be all-inclusive, but rather to present a balanced picture of public opinion. Although many prominent individuals have publicly expressed support of or opposition to the Project, this list is primarily limited to organizations and public bodies.

[26] - Joint Public Hearing conducted by the Board of Supervisors and the Redevelopment Agency on Yerba Buena approved Redevelopment Project Area D-1, June 11, 1973, official transcript.

2) TOOR vs. HUD, 1969, challenging the YBC Relocation Plan. This litigation resulted in a preliminary injunction in April 1970; a subsequent "Consent Order" dissolving the injunction, establishing an Arbitration Board and requiring the Agency to construct 1500-1800 units of low-rent housing within a three-year period; and a court approved Settlement between the Agency and TOOR in 1973. The Settlement called, most significantly, for the allocation of hotel tax funds and the sale of Redevelopment Agency bonds to finance the construction of four low-to-moderate income housing projects for mature adults, in exchange for dismissal of the suit. Three of these housing projects are proposed within the YBC Project boundaries, and one is outside but adjacent to the boundaries.

Two additional suits are pending against the City: Duskin vs. Alioto and Williams vs. the City and County of San Francisco. These primarily challenge the method selected for financing the construction of the public facilities. Appendix E provides a more complete summary of litigation concerning YBC.

In addition to the above litigation, an initiative petition was circulated by a group known as Friends of Yerba Buena, calling for an alternative method of financing the Public Facilities and for certain changes in the composition of the Project elements. The petition did not receive sufficient signatures to be placed on the ballot in November 1973.

IV. Detailed Descriptions and Probable Environmental Impacts

A. Natural Features

Natural features are here defined as those physical attributes such as hills and water courses formed by natural physical action.

1. Topography: One of the first descriptions made in the English language of what is now the South of Market area was that of Captain George Vancouver who sailed into the Bay in November 1792. He wrote in his diary, "a few scattered trees were growing on the more elevated land, with some patches of dwarf shrubs in the vallies; the rest of the country presented either a surface of naked rocks, or a covering with very little verdure."

When first mapping of the area was done by the U.S. Coast Survey in 1852[27], the shoreline of Mission Bay was located just south of the intersection of Folsom and Fourth Streets. At that time, the project area was covered with sand dunes with indicated heights of as much as forty feet. Over the years, the area has been subjected to filling and surface grading. What was formerly Rincon Hill has been substantially reduced as the result of such activities, and manmade land now occupies the former site of Yerba Buena Cove a few blocks to the southeast of the Project Area.

Today, the project area has no topographical features of a significant nature. The natural slope of the ground is toward the south, ranging in elevation of 25 feet to 10 feet mean sea level (msl).[28] There are no major water courses, open areas, hills or depressed areas; no natural wooded areas or lakes. The YBC project and its proposed Plan Changes do not present any alteration to the existing topographical features of this site.

2. Wildlife and Vegetation: The early urbanization of this area resulted in the removal of any natural vegetation or wildlife which may have existed. When the area was at its peak of development in the late 1950's, before demolition of structures began, there was virtually no space left for trees or vegetation. As buildings were removed, some lots were graded for automobile parking while others were left vacant with weeds.

One exception is an area of approximately 1½ acres surrounded by Third, Folsom, Ritch and Harrison Streets. On this cleared site, some of the remaining residents have planted and are maintaining a neighborhood garden, including

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27 - U.S. Geological Survey Quandrangle Sheet 1:24000 (San Francisco Northern California) 1956.

28 - Yerba Buena Center, Foundation Investigation, Dames & Moore, March 20, 1972, Page 4.

a variety of plants from sunflowers to a small redwood tree. This parcel is designated for office use in the Agency plan. The garden is an unauthorized use and is slated for eventual removal.

A second neighborhood garden has been planted south of Clementina Street and is being maintained by the residents of Clementina Towers. This use has been authorized by the Agency as an interim use until such time as the parcel is developed in accordance with the Plan.[29]

At present, some of the parcels in the peripheral blocks which have already been redeveloped or rehabilitated have had formal landscaping. A substantial amount of additional landscaping, street trees and open plaza areas (which is discussed more fully in the "Urban Design" section of this Statement) is proposed for the Central Blocks area.

Thus, although there is the negative impact of removing the neighborhood gardens, the net impact will be positive by substantially increasing the amount of vegetation in the area.

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29 - This parcel has been designated for low-income housing in Plan Change II.

B. Earth Sciences And Man-Made Systems

1. Geology

Extensive soils testing has been completed in the Project area by the firm of Dames & Moore under contract to the City and County of San Francisco.[30]

The site geology[31] indicates up to 37 feet of surface dune sand underlain by erratically placed deposits of compressible bay and marsh clay which extend to depths of -22 feet.[32] The next lower soil stratum encountered is a dense clayey sand varying from 5 feet to 13 feet in thickness.

Below these deposits is the Colma formation of dense silty sand, with an upper elevation of -14 feet to -29 feet in the proposed Exhibit Hall area and up to -6 feet in the Sports Arena area. It is underlain by older bay and marsh clay deposits with upper elevations between -58 feet and -92 feet, and vastly varying thicknesses (refer to Exhibit 16).

These deposits rest upon residual soils and an irregular bedrock known as the Franciscan Formation. The bedrock surface is at elevation -245 southeast at the intersection of Third and Folsom, and is believed to continue to rise to the southeast until it reaches the surface at Rincon Hill.[33]

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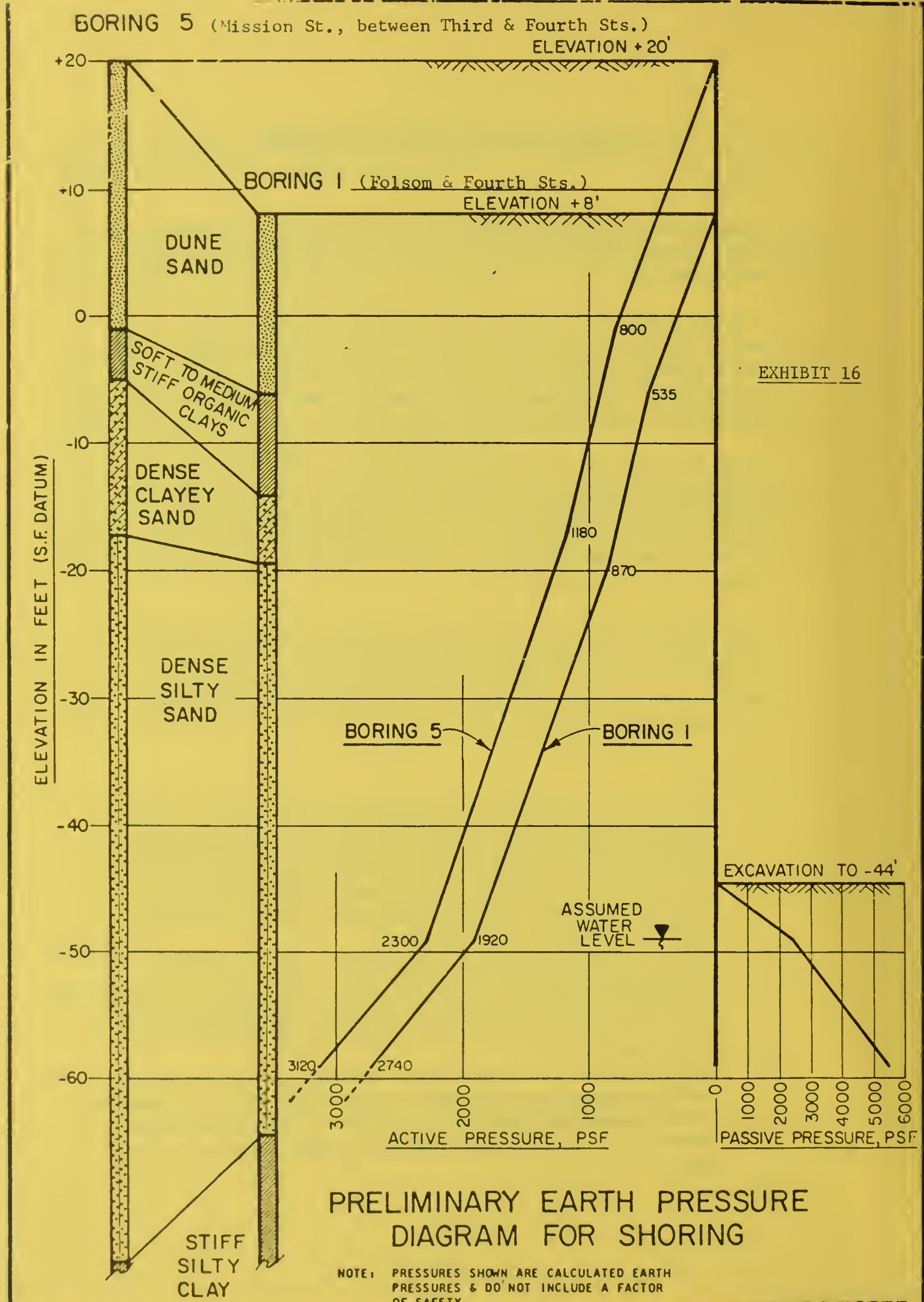
[30] - Foundation Investigation, Yerba Buena Center, Exhibit Hall & Sports Arena for the City and County of San Francisco by Dames & Moore, March 20, 1972. (Subsurface soil conditions were explored by drilling 12 borings at selected locations throughout the site. Refer to Appendices F1 and F2 for Plot Plan and Generalized Soil Profiles.)

[31] - Refer to Appendix F3 for an explanation of the historical geologic formations.

[32] - All figures, unless otherwise noted, are based upon San Francisco datum, which is approximately 1/2 foot below mean sea level.

[33] - The Dames & Moore borings were confined to the Project area, and thus testing was not performed on Rincon Hill. The pattern would suggest that the exposed bedrock on Rincon Hill is an extension of the Franciscan Formation underlying the project area.

EXHIBIT 16



PRELIMINARY EARTH PRESSURE DIAGRAM FOR SHORING

NOTE: PRESSURES SHOWN ARE CALCULATED EARTH PRESSURES & DO NOT INCLUDE A FACTOR OF SAFETY.

The engineering properties of these formations vary considerably. In the past, buildings in this area have most often been founded in the layer of dune sand which has a low relative density and moderate shearing strength, with a strong potential for densification and liquefaction in the case of strong seismic shaking. The next two formations of bay deposits and clayey sand are moderately compressible, with low to moderate shearing strengths. The layer of dense silty sand is an excellent foundation material with high densities and high shearing strengths. Based upon their soils investigation, Dames & Moore concluded that these "bearing sands... are very competent materials with a relative density of 80% or more and are not considered susceptible to liquefaction under seismic shaking."[34]

The layer of marine clay underlying the bearing sand is overconsolidated, but could nevertheless contribute appreciable settlement to heavily loaded structures such as the planned public facilities.[35]

All of the public facilities are to be supported on spread footings founded in the layer of dense silty sand. Although construction designs are not yet developed for the private facilities, the soils investigation studies are to be made available to the private redevelopers and construction plans will be closely monitored by the Agency to assure a soundness and safety of development equivalent to that of the public facilities.[36]

The deepest major foundation level in the Project will be that of the lowest basement level of the Exhibit Hall/Parking Garage complex at elevation -34 feet. Since the water table level is at elevation -2 feet,[37] it will be necessary to artificially lower the water table to avoid flooding the site during construction, and to maintain a permanently lowered table beneath the Public Facilities to reduce the upward hydrostatic pressure against the spread footings and foundation.

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[34] Op. cit.: Dames & Moore, p. 25.

[35] Ibid., p. 6.

[36] Refer to Appendix G, Letter to James H. Price from Robert L. Rumsey.

[37] The lower water table level in the area is presently between Elevator -8 and -13 feet, but rising steadily. It is believed that previous dewatering activities in the area have created this artificially low table and that it will gradually return to a level of approximately Elevation -2 to Elevation -0.

By digging wells and continually pumping water from the site, the water table will be initially lowered to elevation -70 feet to allow for the construction of cut-off walls around the southern two blocks of the Central Block area. These walls are to provide permanent insulation to the foundations, while allowing the water table outside the walls to resume its natural level. Within the walls the water table will be allowed to rise to elevation -34 feet, and will be permanently maintained at this level through a combination of pumps.[38]

A potential negative impact of the excavation scheme is the possibility of subsidence in the Project and surrounding area. Potential subsidence of the newly constructed Public Facilities within the Project area could be as great as 1/2" to 2" during construction as the load is applied but would not affect the Project following construction.

The initial dewatering of the site to allow for the construction of the cut-off walls could create a small degree of additional subsidence of surrounding buildings until such time as the cut-off walls are completed, and the water table returns to its previous level. In their soils investigation report, Dames & Moore stated that:

> "Groundwater level readings taken from another investigation indicate that recent, dewatering programs in downtown San Francisco have lowered the water table to at least as low as Elevation -26 feet. Based on the behavior of the existing structures in this area, and other areas of San Francisco, the proposed temporary dewatering should not result in noticable settlement of the existing nearby structures. No highly compressible soils are expected to be encountered much below Elevation -26 feet, and therefore settlements for this proposed dewatering scheme should not be any more adverse than those previously experienced. However, it is suggested that prior to construction, accurate level readings be taken on adjacent structures which may be susceptible to distress caused by the areal subsidence."[39]

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38 - The dewatering process will add 0.72 mgd to the underground water system during the initial phase, and 0.08 mgd after the cut-off walls are complete. Refer to Section IV., B., 2 for a discussion of the impacts.

39 - Op. cit., Dames & Moore, p. 24.

To mitigate against potential negative effects of areal subsidence the Agency will continually monitor the area through the use of observation wells and subsidence markers. Corrective measures, such as pumping water back into the effected areas, will be taken by the Agency if the need should arise. [40] Due to these preventive and corrective measures, no negative effects are expected from areal subsidence.

2. Seismology

There are no known earthquake faults directly under the Project area. The closest major faults are the San Andreas, the Hayward and the Calaveras. The San Andreas is a few miles west under the Pacific Ocean as it passes the City of San Francisco. The Hayward and Calaveras Faults are in the East Bay.

Fifty-one earthquakes registering 5.0 or more on the Richter Scale have been recorded in the Bay Area [41] since 1808. The most severe was that in 1906, which has been estimated at a Richter intensity of 8.3. The entire YBC Project area was destroyed during this disaster; however, the major portion of the damage was caused by the resultant fire rather than by the tremor itself.

Seismologists estimate the recurrence interval of an earthquake of this intensity to be 100-200 years. [42] In the assessment of John A. Blume & Associates, "the Yerba Buena Center facilities are likely to be subjected to a great earthquake such as San Francisco 1906 in their useful life span and also to sharp, damaging earthquakes of a lesser magnitude two or more times during their useful life." [43]

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[40] Op. cit., Appendix G. Refer to this letter for an outline of the steps the Agency is prepared to take.

[41] Within 25 miles of the YBC Project area.

[42] Blume, John A. & Associates, Engineers: "Seismic Design Criteria for Public Facilities, Yerba Buena Center," prepared for McCue, Boone & Tomsick, Executive Architects, Yerba Buena Public Facilities, December 1972. p5. (This is not intended to imply that a major quake could not occur at any time regardless of the estimated interval.)

[43] Ibid., p. 5.

Seismic design criteria have been established for the Project's Public Facilities by the firm of John A. Blume and Associates, Engineers, and adopted by McCue, Boone and Tomsick, the Executive Architects for the Public Facilities. Values of dynamic soil properties at strain levels anticipated during an earthquake were provided by Dames & Moore [44] and formed the basis for extensive soil-structure interaction studies by Blume & Associates.

The basic design procedures consisted of first designing each building to meet earthquake standards of the 1970 Uniform Building Code, and then readjusting the design based upon the results obtained from dynamic analysis of the structural frames. As the result of this testing, the criteria recommended by Blume & Associates establishes a base shear coefficient for the first step of design of 0.2. This factor, which will result in a calculated total seismic force of 20% of the building dead load, is at least two and one-half times greater than the code-required force. The distribution of this total seismic force, called base shear, will be in accordance with the code.

The buildings were further analyzed dynamically against structural response spectra for a magnitude 7.0 earthquake and a magnitude 8.3 earthquake. These results led to a series of structural and non-structural recommendations to respond to the ductility of the buildings.

The studies performed meet the requirements of HUD's recently revised guidelines [45] and appear to provide adequate assurances against serious damage in a moderate earthquake and against collapse in a major earthquake.

While proper design can minimize the effects of an earthquake on a completed structure, there is still the short term problem if a major quake occurs during the construction period, when buildings are most vulnerable. A high degree of structural damage is certain in any new construction in seismic risk zones during a major quake; however, collapse can be prevented by the installation of temporary bracings in incomplete structural framing and in areas of open-excavation. To minimize the potential negative impact of seismic activity during construction, the City will provide adequate shoring to prevent collapse.[46]

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[44] Dames & Moore, "Report, Dynamic Laboratory Testing, Proposed Public Structures, Yerba Buena Center," Aug. 8, 1972.

[45] "Earthquake Procedures for HUD Programs in Seismic Zones II and III, SF 4541.1, September 10, 1973.

Dynamic studies have not been performed for the Project's private developments. However these parcels will be subject to the requirements of the Uniform Building Code and to strict regulation by the Bureau of Building Inspection.[47]

With the incorporation of these higher seismic design standards and preventive measures in the Central Blocks developments[48] and strict regulation of all future development in the peripheral blocks area, the potential negative effects of severe seismic shaking has been adequately minimized, and structural collapse appears highly unlikely.

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[46] Refer to Appendix G., Letter to James H. Price from Robert L. Rumsey.

[47] I bid.

[48] Op cit., Refer to "Earthquake Procedure for HUD Programs."

3. Liquid Domestic Wastes and Hydrology

All liquid wastes (sewage) and urban runoffs in the City and County of San Francisco are discharged into a combined sanitary sewer and storm drain system. These are currently transported to three treatment facilities known as North Point, Southeast, and Richmond-Sunset. YBC liquid wastes will initially be disposed at the North Point Treatment Plant, which provides conventional primary sewage treatment only.[49] However, the amended San Francisco Master Plan for Waste Water Management, adopted by the Board of Supervisors on July 2, 1973, calls for the abandonment of the North Point Plant as a dry weather facility, construction of transport facilities to take the North Point flow to the Southeast Plant, and the enlargement of facilities and upgrading of treatment at the Southeast Plant to handle the combined flows. This transition is scheduled for completion by June 1978.[50]

Secondary, or Level II, treatment is to be provided at the Southeast Plant for the North Point flow by January 1980.[51]

Therefore, there are three stages of impact which must be considered:

1) Start of Construction to June 1978

   Primary treatment of YBC wastes (during the construction phase and following completion of the earliest development) at the North Point Plant;

2) July 1978 - December 1979

   Primary treatment of YBC wastes (following completion of most major development) at the Southeast Plant; and

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[49] The primary treatment includes prechlorination, screening, grit removal, preparation and primary sedimentation with chemical coagulation capabilities using ferric chloride and post chlorination.

[50] The amended Master Plan for Waste Water Management presents two time schedules for improvement of the existing sewage system. With no unforeseen delays, the transfer of the North Point flow would occur by June 1977. In discussions with City officials, it appears more realistic that the transfer will be completed by June 1978 as depicted on Time Schedule B of the Plan.

[51] On Time Schedule A, Level II, treatment is scheduled for completion by June 1977.

3) January 1980 and After

Secondary treatment of YBC wastes (following completion of all construction) at the Southeast Plant.

Phase I - Start of Construction to June 1978

The maximum rated hydraulic capacity of the North Point Treatment Plant is 180 million gallons per day (mgd) The average dry weather flow received at this plant is approximately 61 mgd.[52] Although the facilities are adequate to handle the dry weather flow, during heavy rain the wet weather flow exceeds the maximum capacity of the North Point Plant, and the comingled waters are discharged directly into the Bay, bypassing the treatment facilities.

The YBC project will have a negative impact to the extent that it contributes to the total amount of sewage processed at this facility, since only primary treatment is provided and since it is frequently necessary to use the bypass procedure.

The maximum increase in dry weather flow from the YBC project prior to June 1978 is expected to be 1.31 mgd of domestic wastes[53] and 0.08 mgd from dewatering of the site following construction,[54] for a total of 1.39 mgd. This will constitute approximately 0.77% of the Plant's total capacity and 2.13% of the projected average dry weather flow to this facility in 1978.[55] This amount of approximately 2% is not of a major magnitude and will not tip the balance in San Francisco's sewerage system. However, to a small degree, it will exacerbate an already inadequate system, and must be considered a negative impact to that extent.

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[52] San Francisco, Division of Sanitary Engineering Master Plan for Waste Water Management, presented to the Board of Supervisors, September 15, 1971.

[53] Estimates are based upon the status of construction as shown on Exhibit 4, pg. 11, and upon waste standards per square foot as shown in Appendix H1.

[54] Dewatering will reach 0.72 mgd during the initial phase, but will be reduced to approximately 0.08 mgd after the cut-off walls are built and construction begins. Refer to Section IV, B., 1. of this Statement for explanation of dewatering process. Dewatering estimates received from McCue Boone Tomsick, Executive Architects.

[55] The dry weather flow in 1978 is projected to be 65 mgd. SF Master Plan for Waste Water Management, September 1971, Plate V.1.

The characteristics of liquid domestic wastes generated in YBC can be considered typical of an urban area with respect to suspended solids, BOD, nitrates and other content components. It is, therefore, not expected that any disproportionate loading will result from these wastes. However, the urban runoff, while not increasing in quantity following redevelopment, is expected to have a higher concentration of water pollutants due to the vehicle exhaust, oil and rubber deposited on the streets by a higher concentration of traffic.[56]

During the winter months, rainfall will diminish shock loads by periodic flushing of the streets and thus preventing heavy pollutant build-up. To mitigate against shock loads during the summer months, the City has recently purchased new equipment to provide for a program of daily flushing and sweeping of streets in YBC and other downtown areas. However, until this runoff flow is transferred to the Southeast Plant, it will have the negative effect of increasing the amount of run-off pollutant influents to the North Point Plan approximately as follows:[57]

BOD_5	0.3%
Suspended Solids	0.2%
Total Nitrogen	0.006%
Total Phosphorus	0.004%

Again, the percentage increase of pollutants caused by YBC area runoff is minor, but must be considered a negative impact since these pollutants are not properly treated.

The present underground sewer facilities in the project area have been adequate to handle the past combined sewage and storm drain flow without major flooding.[58] Based upon City studies and rainfall records,[59] no flooding in the project area has occurred since 1944 (when record keeping began) to such a degree that a complaint has been received by the City. Review of the weather bureau records shows a storm approaching a 50-year frequency in 1946, and another in 1972 which approximated a 100-year storm. These did not flood basements or streets sufficiently to lead to any complaints. Therefore, it is anticipated that the facilities are adequate to handle the 1978 (dry weather) flow of 1.41 mgd (0.02 mgd existing, plus 1.39 mgd increase from new development) in combination with a wet weather flow as severe as that created by a 100-year storm. No negative impact is expected from area flooding.

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[56] Refer to Appendix H2 for the estimated street runoff pollutants from YBC upon full development.

[57] Refer to Appendix H3 for total loadings at the North Point facility. The percentages presented here are based upon the maximum loadings occurring 365 days per year upon full development of the Project area, and are, therefore, likely to be somewhat inflated.

[58] It is estimated that the dry weather flow prior to Redevelopment was approximately 2.0 mgd.

[59] City of San Francisco, Division of Sanitary Engineering.

Phase II - July 1978 to December 1979

The Southeast Plant is to have a rated hydraulic capacity of 816 mgd and is estimated to receive an average dry weather flow of 91 mdg[60] from the combined North Point and Southeast flows during the late 1970s. The bypass procedure will not be used, but it is estimated that overflows will occur eight times per year (16 hours) and the excess will not be treated, but will be directly discharged. The Plant will provide improved primary treatment to the North Point flow during the second phase.

The YBC dry weather flow at this time is estimated to be approximately 2.58[61] mgd or 0.3% of the facility's total capacity and 2.8% of the projected average dry weather flow to this Plant.

Whereas, the YBC flow will again have a minor negative impact by increasing the amount of improperly treated sewage by approximately 2.8%, it will not threaten the Plant capacity or contribute a large percentage to the total flow. The impact will be somewhat lessened during this phase through improved primary treatment and the deletion of the bypass procedure.

Phase III - January 1980 and After

By January 1980, the Southeast Plant is scheduled to provide secondary treatment to the North Point flow in accordance with the California Bay Area Regional Water Quality Control Board discharge requirements, with an ultimate long-term plan for tertiary treatment for all dry weather flows.

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[60] Op. cit., Master Plan, Plate V-1.

[61] Refer to Appendix H_1.

The YBC dry weather flow following full development is estimated to be 2.91 mgd,[62] or 0.35% of the Plant's total capacity and 3.19% of the average dry weather flow. This quantity will not threaten the Plant's capacity and will be properly treated in accordance with the Water Quality Control Board's discharge requirements.

In addition to the treatment facility additions previously discussed, San Francisco plans to implement a program to control storm water overflows by building underground retention basins throughout the City, to catch high sewer flows and release them back into the sewer system after storms have subsided. Although this program is scheduled for completion in 1983, the high cost of the program is likely to mandate only gradual implementation. Consequently, storm overflows can be expected to continue, but at a reduced frequency, for some time in the future.

In summary, the negative impact of the liquid wastes generated by the YBC project will be a short-term impact which will occur between 1976 when the earliest development is completed and 1980 when secondary treatment facilities are available. Although, the ratio of YBC flow to the total flow of liquid waste at either of the Plants is only 2% to 3%, any increase in liquid wastes must be considered a negative impact until such time as the City has the capacity to provide adequate treatment in 1980.

The proposed Plan Changes do not significantly alter the overall impact of the Project. The proposed hotel is estimated to contribute an average of 0.063 mgd and a maximum of 0.076 mgd of the Project's total 3.19 mgd. The office building originally proposed for this site would generate approximately 0.064 mgd. The three proposed housing sites are expected to generate 0.051 mgd, as opposed to the 0.095 mgd which would be generated by the originally proposed office buildings.[63]

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[62] Refer to Appendix H_1.

[63] Refer to Appendix H_1.

4. Solid Wastes

Solid wastes are discussed in three categories. Solid domestic wastes are those generated in the normal course of any day by the existing population in an area. Construction debris is the waste material unique to construction activities such as lumber, scraps, pipes and cement rubble. Excavation material or land fill is the soil and rubble removed from a site prior to construction.

Solid Domestic Wastes

All residential, commercial and industrial solid domestic wastes in San Francisco are collected by private scavenger companies under contract with the City. These wastes are transported to the City of Mountain View for disposal in a sanitary landfill. The contract term with Mountain View for this disposal extends to the end of 1975. It is currently being renegotiated for additional time and extension appears likely to at least 1980. If the City of Mountain View continues to receive refuse from San Francisco following 1975, the life expectancy of the site is six years.[64]

The City and County of San Francisco produces approximately 520,000 tons of solid wastes per year,[65] which constitutes very nearly all of the loading at the Mountain View site. The amount generated by the YBC Project[66] will steadily increase as development is completed. Upon full development, the annual increase in solid wastes produced by YBC is estimated at 25,967 tons[67], or approximately 5.0% of the City total. The steady increase in solid wastes from YBC over the next six years or the life of the Mt. View site, is estimated to reduce the life expectancy of that site by approximately 6 weeks. Future sites have not yet been identified, but it can be anticipated that solid waste from the completed YBC project will reduce their life expectancy by a small amount.

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[64] Discussion with John Carlson, Division of Engineering, City of Mountain View. (This area is to be developed into a Regional Park upon completion of the fill).

[65] San Francisco Department of Public Works, Office of the City Engineer.

[66] Currently estimated at 2,500 tons per year.

[67] Refer to Appendix I, for the breakdown of the YBC generation of solid wastes.

The problem of finding future and adequate disposal sites for domestic wastes is a major problem for the City of San Francisco as well as for all California cities,[68] and the YBC project will have a negative impact to the extent that it exacerbates an already difficult situation.

The quantity of solid wastes would be slightly increased if the Plan were to proceed as originally approved, without the two Plan Changes, since the proposed 700-room hotel and approximately 400 units of housing will generate less solid domestic waste than the four office buildings originally planned for those sites.[69]

Construction Debris

It is estimated[70] that a total of 33,000 tons of construction debris will be produced in the YBC area over the nine year construction phase, or an average of approximately 3,667 tons per year. These are to be disposed of by the individual contractors at a site in the City of Richmond with a life expectancy of 40 years. YBC debris will constitute approximately 0.61% of the site's annual loadings of 600,000 tons during the construction phase. Based upon the total loadings at the Richmond site over the next 40 years, the amount from YBC can be computed as reducing the life of the disposal site by approximately 3 weeks or 0.14% of its life expectancy. Therefore, there will be the minor short-term negative impact of adding to the demands upon the site until construction is completed.

Excavation Material

Unlike other forms of solid waste, excavated soils are a valuable commodity which are purchased to surcharge or fill land areas to prepare them for development.

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[68] California State Department of Public Health, Status of Solid Waste Management in California, 1968.

[69] Hotel w/490 employees @ 3.5 lbs/capita/day and an average of 784 guests @ 2.5 lbs/capita/day x 365 days = 671 tons/year vs. Office building @ 2,550 employees x 3.5 lbs/capita/day x 260 days = 1,160 tons/year. Three housing projects w/500 residents @ 2.5 lbs/capita/day x 365 days = 228 tons/year vs. three office buildings w/2505 employees @ 3.5 lbs/capita/day x 260 days = 1,140 tons/year.

[70] The estimate was derived through discussions with the following contractors, based upon their experiences with the construction of highrise office buildings in San Francisco: C.H. Beck, Haas & Haynie, and Williams & Burrows.

Construction of the total YBC project will result in an estimated two million cubic yards of excavation materials. It is anticipated that the initial 300,000-400,000 cubic yards of soil will be disposed of in the India Basin Urban Renewal Project area. Surcharge materials are required in the India Basin area to prepare it for redevelopment, and thus, the YBC excavation will have the positive impact of providing these materials to the project and saving the Agency the cost of contracting for them on the private market. Future disposal sites will be negotiated as additional excavation material becomes available. Since there is currently a demand for these materials, it is anticipated that YBC will have the minor positive impact of providing fill to areas of need, and thus, slightly reducing the need for developers to grade existing hillsides or other undeveloped areas to obtain the necessary fill.

As the excavation materials are hauled to the disposal sites, there is a potential for spillage along the haul route, which would increase the ratio of pollutants in the urban run-off in these areas. It has been estimated that the maximum amount of potential spillage could be 0.11% of the total excavation materials.[71] This would constitute 2,970 tons[72] over nine years, or an average of 0.9 tons per day.

The excavating contractor is responsible for disposal of these wastes and for the cleaning of any spillage. The haul route is inspected by the City and any spillage is reported to the contractor who must clean it himself or the City will clean and bill the contractor. For this reason plus the regular street cleaning and flushing program of the City, no shock loads are expected from the spillage; however, the average daily organic and silting pollution load along the haul route is expected to slightly exceed that from other areas of the City, resulting in a short-term negative impact during the construction phase.

In summary, the YBC project has the potential negative long-term impact of exacerbating the current problem of availability of domestic disposal sites and the short-term negative impacts of increasing the pollutant content of urban run-off along the haul route and of slightly increasing the demands upon the Richmond disposal site during construction. It is also likely to have the positive impact of providing needed landfill to India Basin and other areas in the City.

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[71] ADL & URS, pg. V-K-7, based upon EPS's Completion of Air Pollutant Emission Factors, 1972. (Officials of the S.F. Dept. of Public Works have indicated that this amount of spillage is far in excess of what their experience indicates will actually occur.)

[72] Based upon 110 lb. per cubic foot.

5. Utilities

Preliminary studies of utility demand and consumption have been performed by Gayner Engineers for the Public Facilities and by Montgomery & Roberts, Engineers, for the Private Facilities and are used here as the primary source for analyzing utility impact.

Water

The City's water is provided by the San Francisco Water Department. The project area is part of a large service area which receives water from the University Mound Reservoir, which has an ultimate capacity of 62 mgd. The current demand upon the reservoir's capacity is approximately 25.2 mgd[73], or 40.6% of the reservoir's ultimate capacity.

Water consumption in the YBC project area will rise steadily until 1983, when it will level off following completion of construction and rent-up of all facilities. Maximum water consumption figures have been projected by Gayner Engineers, and by Montgomery & Roberts Engineers by assigning an estimated number of water consuming fixtures (toilets, lavatories, hose bibbs, irrigation and fountains, etc.) to each structure as proposed. From this total fixture count, a total water consumption rate was determined in millions of gallons per day (mgd). The increase in water consumption for the Peripheral Blocks area is projected on the basis of the estimated increase in population and average water consumption figures per capita.

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[73] This reflects a drop in total usage from the 1950's (refer to Appendix J); projected usage is expected to return to this prior level.

Maximum water consumption is projected as follows:

Source	Max. Consumption
Central Blocks (Public Facilities)[74]	2.0 mgd
Central Blocks (Private Facilities)[75]	0.5 mgd
Peripheral Blocks[76]	0.54 mgd
Total Consumption	3.04 mgd

The total daily water consumption demand upon the University Mound Reservoir in 1983 is estimated at 32.0 mgd,[77] or approximately 51.6% of the total ultimate capacity of the Reservoir. The proposed YBC development will constitute approximately 9.5% of this demand or 4.9% of the Reservoir's ultimate capacity.

Since water is a renewable resource and the reserve capacity of the Reservoir is not threatened, the impact of the YBC development upon the existing water supply is negligible.

Modification to the existing water distribution system will consist of the abandonment of certain lines; addition of service mains and branches; and reconstruction and rerouting of certain supply mains which pass through the project area. Fire control and protection will be provided by a loop system which will supply water at a rate of 2,000 gallons per minute. This will be supplemented by an emergency 200,000 gallon reservoir system to provide fire protection for one hour and forty minutes. These modifications are designed to improve the supply and pressure to the area and should have the positive impact of improving service efficiency in the South of Market area.

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[74] Includes Sports Arena, Public Parking Garage, Convention Complex, Public Plaza, and the Central Heating and Cooling Plant which is a Public Facility located in the Peripheral Blocks.

[75] Includes Apparel Mart, Hotel, Retail Shops, Theater, 4 Office Buildings.

[76] Includes approximately 25,000 employees @ 20 gpd per capita and approximately 850 residents @ 50 gpd per capita. (Standard water consumption figures were taken from the National Plumbing Code, published by the American Society of Mechanical Engineers).

[77] Refer to Appendix J_1, Water Demand Curve.

Electricity

Electricity in the YBC area is supplied by the Pacific Gas and Electric Company through an underground grid network. Services will be available to all parts of the proposed project from both the existing underground distribution system and extensions from PG&E substations in the area.

Maximum demand loads for the proposed Public Facilities are estimated as follows: 78

Public Parking Garage	3,200 KW
Exhibit Hall	10,000 KW
Meeting Hall	1,500 KW
Sports Arena	3,200 KW
Central Plant	3,200 KW
TOTAL	21,100 KW

The proposed Central Block private facilities requiring electric power include a theater, hotel, apparel mart, retail commercial space, and office buildings. The electrical demand for these facilities has been estimated by Montgomery & Roberts, Engineers, at approximately 25,000 KW.

Since building designs for much of the new construction in the peripheral area are not yet available, estimated electrical load is based upon type of occupancy and estimated floor area. On this basis, the electrical demand attributable to pending new development in the peripheral blocks is estimated at 20,200 KW.[79]

Upon completion of the YBC development, the total estimated electrical demand would be increased over the present demand as follows:

Central Blocks, Public Facilities	21,100 KW
Central Blocks, Private Facilities	25,000 KW
Peripheral Blocks	20,200 KW
TOTAL	66,300 KW

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78 URS Research Company, Yerba Buena Raw Utilities Data, September 1973: letters from Gayner Engineers to PG&E, April 27, 1972, and May 10, 1972. (Refer to Appendix J_2 for a breakdown of the maximum connected and demand.)

79 Montgomery & Roberts estimate as amended to include approximately 400 units of low-income housing @ 279 kwh per unit per month on three peripheral sites, in place of 3 office buildings. (Refer to Appendix J_3 for the consumption of unit electrical demand.)

On a straight line projection of figures furnished by the utility company, San Francisco's total electrical demand is estimated to reach approximately 966 megawatts in the year 1982 exclusive of the new YBC development.[80] Upon completion of construction, the YBC area would impose an additional 66.3 megawatts on this demand for an estimated total City demand of 1,032.3 megawatts. Thus, the YBC complex would constitute approximately 6.42% of the total San Francisco demand.

The utility's system capability is currently over 1200 megawatts and projected to continue to rise steadily.[81] Thus, it appears that the addition of the Yerba Buena electrical load will not impose a strain on the utility's facilities.

The availability of energy resources in the 1980's cannot be projected at this time. In that a large percentage of the utility's generation of electricity is by means of gas or oil-fired steam boiler plants, the increase in electrical consumption attributable to new YBC development will contribute to the depletion of non-renewable natural resources. As a result of the present shortage of natural gas, the utility has been converting its generating plants to oil-fired operation. However, fuel oil is also in short supply, particularly the required low sulphur content oil. This could lead to a severe shortage of electricity in the near future. In view of this set of circumstances, although the utility company has adequate facilities to accommodate the increased demand attributable to YBC, it can give no firm assurance that electricity will be available in the required quantities at the time of Yerba Buena completion.

YBC will have a negative environmental impact to the extent that it contributes to the depletion of limited energy resources. The significance of this impact is difficult to accurately measure, given the uncertainty of the national energy situation.

Natural Gas

The Yerba Buena Center area is presently served by a grid system which is supplied from mains entering San Francisco from San Jose and the East Bay The grid system permits a flexibility of operation which minimizes the possibility of curtailed supply due to service interruption in any particular main. The system which served the area prior to redevelopment is still intact and usable. New services to the Yerba Buena Area will be directly from the existing system and from extensions of nearby facilities.

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80 URS Search Company Yerba Buena Utilities Data straight line projections based upon a letter from PG&E to URS, dated January 18, 1973. (Refer to Appendix J_4)

81 Ibid

The Central Block Public Facilities requiring natural gas include the Convention Center, Central Plant, and the Sports Arena. The Convention Center and Sports Arena gas consumption is estimated by Gayner Engineers at approximately 9.5 million cubic feet (MMcf) per year. This is for exhibitors' requirements and food preparation facilities. The Central Plant, which will provide space heating to the Convention Center, Arena and a small portion of the project north of Mission Street will consume an approximate average of 37.5 MMcf per year.

The Central Block private facilities requiring natural gas include a theater, hotel, apparel mart, retail commercial space, and office buildings. This consumption is estimated by Montgomery & Roberts, Engineers, at about 187.5 MMcf per year.

In the absence of building designs for much of the new construction in the peripheral area, an estimate of consumption as a function of building area and type has been prepared. On the basis of an estimated 4.1 million square feet of new office and commercial space, annual consumption is estimated to increase from its current level by approximately 149.4 MMcf. Consumption for the approximately 400 residential units is estimated at 25.7 MMcf per year.[82]

The increase in natural gas consumption attributable to the completed YBC development is as follows:

Central Blocks, Public Facilities	47.0 MMcf
Central Blocks, Private Facilities	187.5 MMcf
Peripheral Blocks (including the proposed housing units)	175.1 MMcf
TOTAL	409.6 MMcf

This represents 0.40% of the total projected San Francisco consumption of 102,300 MMcf for the year 1982.[83]

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[82] A standard consumption figure for the office and commercial space of 50 Btu per sq. ft. was employed. A standard of 64,200 cf per unit per year for the housing was employed. (Refer to Appendix J_5 and to HUD Handbook HPMC-FHA 4500.6 SF Suppl. 1, "Selection of Utilities for Subsidized Housing in Region IX.")

[83] Refer to Appendix J_6, "Projected Consumption Trends."

Although with the planned utility extension, there will be adequate system capacity to supply the YBC requirements,[84] it is not possible to estimate the quantity of natural gas which might be available in 1982. Future supplies of natural gas are dependent on a number of factors which include size of allocations by the Canadian Energy Board and the U.S. Federal Power Commission, and the details of any curtailment plan which might be in effect at the time.

The use of natural gas in the Yerba Buena complex should be considered a negative impact to the degree that it contributes to the depletion of a natural resource[85]

Summary

The YBC project will not adversely effect the capabilities of the facilities which are to supply water, electricity and natural gas to the area, and its impact upon the supply of water is negligible. However, it will have a potential negative impact by adding to the depletion of natural energy resources YBC is projected to constitute a small percentage of citywide electrical demand (6.4%) and of citywide gas consumption (0 4%); however, with the uncertainty of available resources, it is impossible to determine at this time what portion of the total demand can be met in the 1980 s.

The proposed Plan Changes are estimated to decrease the overall demand for water and electricity in the Project area and increase the demand for natural gas.[86]

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[84] Gayner Engineers, Plumbing Utilities Report and Cost Estimates for Yerba Buena Center Central Blocks Area, October 25, 1971.

[85] On a national basis, the YBC consumption represents 0.00099% of U.S. production and net imports for the year 1971, the only year for which totals are available.

[86] Refer to Appendix J_7 for the computation of the utility impacts of the proposed Plan Changes.

C. Land Use and Aesthetics

1. Land Use Relationships

a. Relationship of Project Area to the City

The proposed YBC development is of such a major size that surrounding land use developments are not expected to have a major impact upon the Project itself. However, the Project may be expected to have a significant impact upon the surrounding area, as well as impacts upon areas beyond the periphery, including the Downtown Business District, the Financial District, the transient and residential hotels, and BART.

Certain land use impacts have already occurred in the City as the result of the proposed Project. There has been a shift of low-income residential units from within the project boundaries to other locations. Approximately 1,962 residential units in the Project have been demolished.[87]

Replacement units are being provided through publicly-financed construction and rehabilitation programs with the greatest percentage of actual and proposed units being in the area North of Market Street, known as the Tenderloin (approximately 669 units), and along the southwestern periphery of the Project area (approximately 1,229 units).[88] The shift has generally resulted in the upgrading of these areas by replacing substandard or blighted conditions with standard housing units. This shift will result in a net reduction of low-income dwelling units within the City. However, it will increase the number of standard units which are available within the tenants' abilities to pay.[89]

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[87] As reported in the Form HUD-6000, "Physical Progress Report" submitted to HUD by the SF Redevelopment Agency, July 13, 1973.

[88] The latter includes the completed Clementina Towers and Alexis Apts., the Salvation Army Apartments which are under construction, and the four proposed housing projects in Plan Change II.

[89] Refer to Section IV, D. for a fuller discussion of relocation and replacement units.

A further land use impact already experienced by the City has been the increase in land use for transient hotel purposes, in anticipation of the convention hall construction. This hotel construction and expansion has generally resulted in increased income to the City through higher property and room tax revenues. However, the long-term economic benefits are highly contingent upon the success of the convention complex and the overall convention business in San Francisco upon which this rapid development was predicated.[90]

Beyond the land use impacts which have already been evidenced, it is possible to project potential effects of the completed Project as well.

The San Francisco Downtown Study, prepared by the Department of City Planning in December 1966, provided the basis for revised zoning in the Downtown area and guiding principles for the future direction of development. The single predominant goal presented by the Study was the "fulfillment of all the potentials of the downtown area through the maximization of development in a manner consistent with community values and efficient organization of functions". The basic public policy expressed was the encouragement and direction of new growth toward the South of Market in order to:

- maximize the use of Market Street as the central transportation corridor;
- relieve pressure for development in the areas north and west of the Financial District including Chinatown, Nob Hill, North Beach and Jackson Square;
- provide area for office space of lesser intensity and with better freeway access; and
- relieve traffic pressure in the core area by moving traffic-oriented development and new parking facilities closer to the freeway access points.

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[90] Refer to Section IV, F. of this Statement, "Economics and Financing", for a discussion of the projected demand.

The Study states that "the Yerba Buena project will provide an important anchor for future development in this district, and will help encourage north-south movement".

It is expected that the proposed YBC development will provide the desired new direction for the growth of the Financial District. To the extent that it does, it can be considered to have a positive impact, as defined by City policy. It is likely to provide for growth in a planned manner, and to relieve the demand pressure for office space development in the areas north and west of the Financial District, thus helping to preserve the unique character of those neighborhoods.

The proposed Project will take advantage of and reinforce the nodal pattern of BART and the other public transit systems along Market Street, and is likely to improve BART's financial viability through the generation of increased passenger business.

The proposed YBC development is expected to have a negative impact upon existing older office buildings in the downtown area and upon current convention and assembly structures which must compete with the new development. The magnitude of the impact will depend upon the growth trends of demand for such space which are difficult to project.[91]

A further potential negative impact is the inevitable pressure and demand for increased off-street parking in the areas surrounding the developed Project. The vacant lots within the Project boundaries presently provide a great quantity of all-day parking spaces available to the Downtown/Financial District area.

If this parking development is permitted to occur, existing adjacent uses, including residential, will be displaced, and traffic congestion in the area will be increased.

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[91] Op. cit., Section IV. F.

If the peripheral parking development is prohibited, a positive impact can be expected through the net reduction of parking spaces in the South of Market area.[92]

The City Planning Commission has the authority to grant or deny parking permits in most instances, and thus the direction of the parking impact is contingent upon future City practices.

b. Relationships of the Plan Changes to the Project

Generally, the planned development of the area will result in the removal of mixed and incompatible uses, the creation of structures consistent with current zoning regulations, and the upgrading of land values in the area. However, exceptions to this are the proposed housing units which, although providing standard units and ancillary services for the elderly, are planned for an area generally zoned for commercial, industrial and downtown support uses.

Site #1 (at Howard and Fourth Streets) is currently zoned for Downtown Support use (C-3-S); however, residential development is permitted as a conditional use. Sites #2 (on Clementina Street between Fourth and Fifth Streets), and #3 (at Harrison and Fourth Streets) are zoned for Light Industrial use (M-1), and new residential development is prohibited unless authorized as a planned unit development. Thus, a zoning change is required to permit the developments of Sites #2 and #3.[93]

If completed as planned, the proposed units will also be partially in conflict with Objective 3, Policy 1 of the Residential Element of the City's Comprehensive Plan. This policy calls for the distribution of low-income housing throughout the City, with the goal of assuring that the ratio of low-income housing to total housing in any one area does not exceed the citywide ratio of low-income housing to the total housing stock. The citywide ratio is currently 3.14%, as compared to 10.6% in the South of Market area. However, the policy further states that "in application, the City's use of this distribution ratio should be flexible enough so that additional low-income housing can be constructed in those areas exceeding the citywide ratio when there is a desire on the part of the community involved to provide more public housing."[94] In the case of YBC, there has been a clear expression of such interest as evidenced in the TOOR litigation.

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[92] Refer to Section IV, E. of this Statement, "Traffic, Noise and Air Quality", for an analysis of the impact of these factors upon the proposed housing.

[93] Ibid.

Although the proposed housing has the potentially negative impact of increasing the concentration of low-income housing in one area, and of providing units in an area which is generally incompatible with residential uses, it also exercises a positive impact in that it is consistent with Objective 3, Policy 2, of the Residential Element, which calls for an increase in the supply of low-income housing in the Bay Area. A further potentially positive impact of the proposed housing would be to enhance the existing units, by increasing the residential nature of the area, and by providing an added market for attracting appropriate commercial and public services to the area.[95]

The proposed hotel is planned in the Central Block area, between Mission and Howard Streets, along the eastern side of Fourth Street. This use is consistent with the City's Zoning Ordinance, and is complementary to the other land uses proposed for the Project. The hotel is mutually supportive with the proposed Convention Center, Apparel Mart and Arena uses, and will also serve the out-of-town visitors to the office buildings, which border the hotel on three sides. By its convenient location, it is projected that the hotel will do adequate business and will provide easily accessible lodging for the users of the Project area. Since the proposed 700 rooms constitute only 2% of the total transient hotel use-days in San Francisco, the proposed hotel is not expected to significantly impact hotel business in other parts of the City.[96]

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[94] "Improvement Plan for Residence", The Comprehensive Plan of San Francisco, prepared by the Department of City Planning, February 1971, p. 23.

[95] Refer to Section IV, D. of this Statement, "Social Impact", for a discussion of the available services in the area.

Summary

The land use relationships and impacts of the proposed Project are mixed and difficult to quantify. As a planned development, it is expected to help direct the growth of downtown in accordance with local policies and guidelines, and thus to help reduce the pressure for commercial growth in other areas of the City. The potentially negative impacts upon the City environment are the possible drain of demand away from existing facilities, the possible proliferation of parking use in the areas adjacent to the Project area, if not prevented by City permit practices, and the net reduction of low-income housing units within the City.

The proposed housing units in Plan Change II also have a mixed impact. Although incompatible with City policy in several areas, they respond to the desires of the community, and provide additional standard low-income units to elderly tenants at rents they can afford, and in an area which is familiar to them.

The proposed hotel appears compatible with other land uses.

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[96] Refer to Section IV, F. of this Statement, "Economics and Financing", for a further discussion of the impact of the hotel.

2. Urban Design

a. Urban Design Element of the San Francisco Comprehensive Plan

The Urban Design Plan for San Francisco adopted by the City Planning Commission in 1971, establishes policy guidelines for physical development in the City. Objectives of the Plan which effect the YBC area include the designation of the type of street lighting for Third and Fourth Streets; the preservation of St. Patrick's Church and view lines along major east/west arterials; and general guidance for land use relationships, bulk and spatial relationships, light and shadow relationships and for street tree plantings.

The height and bulk districts designated in the Plan were adopted as City ordinance by the Board of Supervisors on August 6, 1972. Although construction in the Central Blocks area and portions of the peripheral area are legally exempted from these limitations,[97] the height and bulk criteria, along with other provisions of the Plan, serve as valid standards for assessing the design quality of the project.

The Urban Design standards, in many instances, are not sufficiently specific to provide precise guidelines. However, the Project appears to generally conform to the general guidelines, with a few exceptions noted below.

b. Potential Design Impact

The YBC Central Block area has been designed as an urban "place".

It is, in many ways, a self-contained entity, with vitally interrelated functional elements. The effect of this design technique is to produce a certain trade-off between the "macro" and "micro" aesthetic effects of the area. In general, the Central Block area of the Project will be less appealing to an external viewer due to its introspective nature, and more appealing to an individual participating within the Central Block area.

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[97] "The City Planning Code provides for exemption from code bulk standards for development in a Redevelopment Project Area where a redeveloper has been formally selected by the Redevelopment Agency prior to August 26, 1971 in accordance with an agreement that specifically committed the City to a building bulk configuration not consistent with code standards". Addendum A to the Draft E. I. R., Department of City Planning, July 1973.

(1) Macro Effect

A major design impact and purpose of the remaining project activities would be the removal of what are now generally blighted conditions, consisting primarily of building foundations, fences, temporary surface parking lots and a few isolated structures.[98] The proposed action would profoundly change the use of the site, the visual appearance of the area, and the aesthetic experience of anyone entering or viewing this portion of San Francisco. The impact of this development is magnified due to the Project's strategic location along entrance routes to the City from points east and south.

To the external viewer, the development of large buildings will visually extend the financial and central business districts of San Francisco into the project area, and around the central Market Street mass transit corridor, as recommended in the Urban Design Element.[99] The development of an arena of the proposed height, bulk and design would create a significant visual landmark in San Francisco, However, the positive features[100] of creating a unique building form which expresses the arena's community significance is likely to be somewhat dwarfed by the bulk and height of surrounding buildings.[101]

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[98] Exceptions to general scene include a few buildings in the Northeast portion of the Project area which have been developed or rehabilitated under owner participation agreements and under the urban design control of the Agency. These structures are generally well-sited, individually have architectural merit, and have visibly extended the parameters of the financial district. Additionally, on the southwestern perimeter of the area, a low-rent public housing project has been completed, which includes courtyards and landscaped areas; and the Fifth and Mission Street public parking garage has been extended into one corner of the Project area.

[99] Objective 3, Principle 3: "Clustering of larger, taller buildings at important activity centers (such as major transit stations) can visually express the functional importance of these centers".

Development of the Central Blocks as designed would create a visually defined and separate locational entity within the larger Project area, abruptly rising between Third, Market, Fourth and Folsom Streets, and easily identified as a distinct urban place.

The experience of a person entering the project area along Third and Fourth Streets would be one of heavily trafficked streets with massive buildings rising from architecturally polished and landscaped sites. Along Fourth Street, a linear wall effect would be created by the hotel and office building, forming a visual dividing line at Fourth Street.

Since the Peripheral Blocks area was not included in the master site plan for the Central Blocks, it is somewhat excluded from the theme of the urban place. Although the City's Urban Design consultant reviews the two areas in their larger context, the extent of visual coherence between the two areas is likely to be limited to similar contemporary architectural and landscaping styles and comparable height and bulk of the office buildings.

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[100] "Urban Design Plan Element, San Francisco Comprehensive Plan, May 1971, Objective 3, Principle 9. "Unique building forms can appropriately signify major community facilities."

[101] I bid, Principle 8. "The use of unusual shapes for tall office, hotel or apartment buildings detracts from the clarity of urban form by competing for attention with buildings of greater significance. The juxtaposition of several such unusual shapes may create visual disorder."

Pedestrian access to the Central Blocks is facilitated along Market Street by a concourse connecting with the BART station. Transition levels and arcades are provided from Third, Fourth, Howard and Folsom Streets; however, there is a lack of open, spacious access to the Project area from these streets. The expressed transition from an elevated pedestrian system to the sidewalks ties the two systems together visually and functionally" and that "a space too far above street level loses visual contact with the street".[102] The somewhat closed means of public access from streets other than Market Street contributes to the self-contained aspect of the Central Block area.

Although attempts have been made to reduce the visually massive nature of the Central Block area by undergrounding the exhibit hall and public parking garage, the remaining wall effect still is likely to minimize the feeling of participation and limit the east-west views of the passing pedestrians and of persons in passing vehicular traffic and in surrounding development, including residents of the existing and proposed low-income housing units

(2) Micro Effect

The experience of a person entering the open air public space of the proposed Central Block area would be that of entering a three dimensionally complex urban space of large scale.

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102 Op. cit., "Urban Design Element," Objective 3, Principle 17 and Objective 4, Principle 15, respectively. "Elevated pedestrian levels in large developments, if they relate visually and functionally to the street level pedestrian system, are easy to find and use and contribute to the consistency of development. A clearly expressed transition from an elevated pedestrian system to the sidewalk ties the two systems together visually and functionally." "A space too far above street level loses visual contact with the street."

The major entrance to the area from Market Street would be marked with a thirty story office building, the start of a three-block long Central Concourse and a series of shops. The office building is comparable in size to other new office buildings being built on the South side of Market Street and is likely to cast a shadow on the concourse and on the Phelan Building on the North side of Market Street at certain times during the day. However, the concourse will have morning sun and every part of the Phelan Building will experience direct sunlight at some portion of the day. The Concourse extends at nearly Market Street elevation for the length of the three blocks, but a second level is also developed approximately half way between Market and Mission Streets. On the lower level a park is to be developed around the St. Patrick's Church historical landmark. The setting of the church radically changes from that of a small church tucked in between commercial service buildings and parking lots to that of being an architectural ornament in the midst of prestigious new buildings and a major urban open space. The church is likely to be enchanced by the park and greenery surrounding it, but somewhat dwarfed by the other more massive buildings in the Project. The character of its parishioners is expected to shift significantly with the transition of the area from low-income residential to primarily transient use.

Across Mission Street the concourse opens to a grand width of 200 feet. Major access to this area is to be by way of pedestrian overpasses from both the North and South blocks, which will relieve conflict with vehicular traffic. In addition to the structures that define the space of this central plaza area, major features will include a large fountain, a display of art work, an enrichment of the space with plant materials, a multilevel pedestrian circulation system, and canopy designed to diffuse wind currents.

The development on the Third Street side of the plaza is to be a massive six-story Apparel Mart building. Within the complex, the scale of this structure is softened somewhat by the elevated concourse walkway which tends to divide the building's bulk. Relatively low level hotel facilities and shops are to flank the concourse to the west, which would open the concourse to the sun. However, further to the west is the proposed twenty-four story hotel, which exceeds the current bulk restrictions by approximately 130 feet in length and 105 feet in diagonal dimensions. An open space exists between the hotel and the low-level facilities and, if constructed is likely to be constantly in shade except for the early morning hours. The wind currents building up against the flat-plane wind-foil type structure of the hotel are also likely to inhibit the growth of plants in this area and to reduce the pleasantness of entering or exiting either facility. Both the shadowed open space and the flat plane building are contradictory to guidelines established in the Urban Design Element.[103]

In the south block of the Central Block complex, the Concourse narrows again and becomes principally an entrance to meeting rooms and the Sports Arena. To the west side a similar wind and shadow design problem appears to exist between the office building and the low-level meeting rooms. The office building is approximately the same size as the proposed hotel and similarly exceeds the current bulk limitations. The Sports Arena, which could potentially be a high generator of evening and BART traffic, is currently located one-third mile away from the BART station, past a darkened Apparel Mart to a block shared by another dead evening use, an office building. This extended nightime distance between BART and the Sports Arena could tend to discourage mass transit use by Sports Arena patrons. unless the area is adequately lighted and patroled. Conversely, since indications are that the large majority of patrons will travel by car regardless of the location,[104] the Arena

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103 Op. cit., "Urban Design Element," Objective 3, Policy 15, and Objective 2, Policies 3 and 4. "Plazas or parks located in the shadows cast by large buildings are unpleasant for the user."

104 Refer to Section IV, E., of this Statement, "Traffic, Noise and Air Quality" for a further discussion of the projected YBC traffic patterns.

location is consistent with local policy in that is providing easy access to the parking garage and freeway ramps, and keeps major traffic flows away from the downtown core area.

The experience of a person within any of the project's tall buildings will be a combination of distant vistas, a view of portions of the project's open space and large expanses of roof area of other buildings. What is done with the design of low roof tops within the project will have a significant effect upon the aesthetic appeal of the final development and its long term maintenance. There is little record that the treatment of the project's low roof tops has received the attention it deserves as a major visual element of the project. The combination of the roof top treatment, plant materials in the three block long plaza and landscaping along the base of the buildings has the potential of introducing a great quantity of living plant materials into the heart of a city that has previously been notably lacking.

c. Urban Design Guidelines and Procedures for Achieving Urban Design Objectives.

(1) Redevelopment Plan

The Yerba Buena Redevelopment Plan sets forth land use and bulk controls. It also states that "the Redevelopment Agency shall evaluate architectural plans for new buildings and buildings to be rehabilitated to ensure that each building will be a distinguished architectural expression which may have a distinctive character and yet be harmonious with adjacent buildings in the project and to ensure that the buildings will conform with the urban design concepts on which the Redevelopment Plan is based." The Plan also requires landscaping and establishes the right of the Agency to set detailed design criteria. Sign controls are explicitly stated and the Plan establishes a procedure for Agency review of architectural, landscaping and sign plans and specifications.

(2) Master Plan for the Central Blocks

This Master Plan was developed under contract to the Agency and the City to govern site development of project land within the blocks bounded by Market, Third, Folsom and Fourth Streets. The Master Plan was reviewed and approved by both the Redevelopment Agency and the San Francisco Art Commission. Together with the YBC Public Facilities text dated March 6, 1972 (Blue Book), the Master Plan sets forth a set of three dimensional controls governing spatial relationships, graphics, development of public space, circulation and location of permitted land uses within the three dimensional scheme. Approximately $1,000,000 of the Public Facilities bond issue and 1% of the private development costs are to be allocated for art objects and landscaping in the Central Blocks area, and over one-third of the ground level area is to consist of public walkways, open areas and parks. Minor variations from the Master Plan and the detailed implementation of its governing concepts are to be permitted only with the concurrence of architectural consultants (with fees to be paid by the developers) and of the Agency's Urban Design staff. Ownership of the Public Facilities sites will initially be retained by the Agency and development will take place by lease agreements with the City and County of San Francisco.

(3) Lease Agreements for Central Blocks Private Development

Each lease agreement for sites in the Central Blocks area contains a section on plan approvals. In addition to detailed use and bulk restrictions, they reserve to the Agency the right to make final approval on color, surface texture, materials, graphics, lighting, landscaping and plant materials. They also require the lessee to pay for the architectural review of the lessee's plans and specifications by an architectural firm retained by the City, not to exceed $50,000.

(4) Peripheral Blocks

The Master Plan described above does not include the development in the Peripheral Blocks. Thus, there is no urban design plan for the project as a whole, but rather a master site plan for the development of three blocks and a control scheme to supervise architectural design in the rest of the project on a site-by-site basis. This supervision is maintained through offering documents and land disposition agreements.

Each offering document for parcels outside of the Central Blocks contains a statement on architectural design review, including a requirement for the hiring of an architect (and, when necessary, landscape architects and graphic designers); a statement of generalized urban design objectives; and a design review procedure for assuring achievement of design objectives. The offering states that failure to obtain Agency approval will result in the purchaser's deposit being returned without interest.

Each land disposition agreement also contains a provision for architectural design review, including provisions for review of the developer's preliminary plans as well as review of construction plans and specifications. These agreements also reserve to the Agency the authority to make final determination as to the developer's conformance to the Agency's design objectives for this project.

(5) Adequacy of Guidelines

The Agency's guidelines described above establish high design standards for the Project area, and give the Agency substantial control over development in the Central Blocks to assure conformance to these standards. The interlocking nature of the entire package means that any variation from the basic scheme or standards could have substantial ramifications for the entire development and, therefore, makes a focal point of control doubly important.

The exclusion of the Peripheral Blocks from the Master Plan Design means that the Agency's control over design in these areas will have to be more reactive than directive. The opportunity to establish development relationships between all Project sites is, therefore, somewhat weakened.

d. Summary

As in any design package, there are trade-offs in the design of the Yerba Buena project. Although tending to be introspective to the external viewer, the Central Block area concurrently provides its participants with a major plaza and open area away from the noise and conflict of vehicular traffic. The entire Project area visually extends the Financial District and capitalizes upon the major transit corridor, in accordance with City objectives.

The only element which appears to benefit neither external observers nor participants is the massiveness and flat plan design of certain buildings, most particularly the hotel, the apparel mart, and the office building in the south block. The exceptional bulk of these structures is likely to overwhelm other features of the Project area. In an effort to mitigate against this impact, the City's Urban Design Consultant is currently studying ways to articulate facades on the hotel and apparel mart.

3. Historic Places

Historic places are most readily identified as those which have been so designated by an appropriate public body empowered by elected officials to be responsible for making such judgments. However, other structures and places may also be significantly interesting and worthy of preservation, when feasible.

Despite an active growth period in the Project area prior to 1906, including the construction of numerous buildings for commerce, industry and residences, few structures remained standing after the earthquake and fire. Among those which did was St. Patrick's Church. The Church, which was dedicated in 1872, is a particularly good example of Victorian

Gothic architecture. It is the only structure in the Project area which is included on the list of designated landmarks developed by the San Francisco Landmarks Preservation Advisory Board. As such, the Church will be retained, renovated, and appropriately landscaped with a small park area. It will serve as an exceptional architectural and historical landmark along the major concourse area of the Project.

Because of the predominantly transient nature of the population which will use the proposed development, the attraction to the church as an historic place will be enhanced. Its activeness as a place of worship and social communion may also be enhanced, but the character of its communicants will likely reflect the social composition of the users of the new development rather than the regular parishioners from the old neighborhood.

Some public interest has been expressed in the retention of a building located laterally to the church. This brick structure was originally built in 1881 and most recently reconstructed in 1907 to house PG&E energy producing activities. Although this building is not officially recognized as a historical place and has been determined by HUD to be infeasible of rehabilitation [105], the Agency and the City plan to retain the portion of the wall containing the entry arch and the most striking architectural attributes as a main feature in the pedestrian concourse and park area.

Several other buildings in the Project area, which primarily reflect the architecture of the 1920s and 1930s, have been noted as being of historic interest by representatives of the National Trust for Historic Preservation. Those that are economically and structurally feasible of rehabilitation are being retained as a part of the Project, and are to be rehabilitated through agreements between the owners and the Redevelopment Agency.[106]

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[105] This determination was made in accordance with Section 307 of the Housing Act of 1969, the main purpose of which is to assure that economically and structurally sound buildings are not unnecessarily demolished.

[106] Refer to Appendix K for correspondence to and from the National Trust for Historic Preservation.

In general, the Project appears to have a positive impact upon places of historic interest within the area. Efforts have been made to preserve and rehabilitate economically sound and architecturally significant structures.

4. Archeology

No exploratory diggings have been made in the area to determine the existence of items of architectural significance. Although the area has long been developed, and no valuable minerals or items of significance have been exposed in the course of the soils investigations, there is reason to believe that some such items may exist, as exemplified by the uncovering of an ancient skeleton in the nearby Bay Area Rapid Transit (BART) excavations. The City is prepared to study any uncovered articles in situs and to provide appropriate preservation measures, if such items are found.[107]

5. Cultural Places

Cultural places are those which provide opportunities for groups and individuals to enjoy, practice, maintain or enhance concepts, habits, skills, arts, instruments or institutions, usually of a particular people and/or time.

Prior to the earthquake of 1906, such places as Union Hall and the Grand Opera House were the principle foci for on-site or near-site social/cultural activities. Post earthquake activities of a significant scale in or around the Project area have been, for the most part, minimal. The sole motion picture theater was recently demolished along with other commercial type activities housed in buildings on Market Street.

In recent years, the Project area has provided a cultural and social environment which has served the needs of the elderly, low-income residents of the area, including such places as social service centers and low-cost restaurants and commercial establishments. Many of these facilities will be shifted to the western periphery of the Project area, and some will be lost completely.

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[107] Refer to appendix G, Letter from Robert L. Rumsey to James H. Price.

The proposed YBC development will provide new and different cultural places, including the proposed indoor sports arena, the meeting rooms and exhibit hall, and a legitimate theater. These places are proposed to accommodate activities such as sporting events, exhibits, displays, meetings and conventions in a central complex providing an array of spatial arrangements and larger capacity than any existing San Francisco facility. These new activities are expected to substantially increase the quality and variety of cultural activities available to all San Franciscans.

D. Social

Social impact is here defined as the effect which the proposed Project development is likely to have upon persons currently living and working in the area who are to be displaced by project activities. The broader city-wide social implications of the Project -- e.g., those related to land use alterations, employment levels, traffic density, etc. -- are discussed in each of the specific impact sections.

As of October 1, 1973, there were 499 individuals, 26 families and 130 business firms remaining to be displaced from the Project area.[108] By comparing the relocation needs of each of these to the relocation resources available, an attempt is made to assess the extent to which displacement is likely to be socially disruptive.

1. Rehousing of Individuals and Families

a. Rehousing Needs[109]		Individuals	%	Families	%
Rent paying ability:	$48.00 or below	370	74.2	12	46.3
	$48.00 - 64.99	31	6.2	2	7.7
	$65.00 - 84.99	31	6.2	6	23.1
	$85.00 and up	31	6.2	4	15.4
	unknown	36	7.2	2	7.7
		499	100.0	26	100.0
Unit Size:	hotels/studios	499	100	0	--
	1-bedroom	0	--	13	50.0
	2-bedroom	0	--	3	11.5
	3-bedroom	0	--	4	15.4
	4-bedroom	0	--	6	23.1
		499	100	26	100.0
Area of Preference:	South of Market	119	23.9	3	11.5
	North of Market	114	22.8	3	11.5
	Outer Mission	18	3.6	1	3.9
	North Beach	20	4.0	0	--
	Western Addition	19	3.8	2	7.7
	Out of City	17	3.4	0	--
	No Preference	158	31.7	16	61.5
	Other	34	6.8	1	3.9
		499	100.0	26	100.0

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[108] These figures represent approximately 33% of the individuals, 15% of the families, and 20% of the business firms originally scheduled for displacement; thus, the major portion of relocation was completed prior to October 1, 1973.

[109] Results of the Redevelopment Agency survey of the remaining workload, conducted in September 1973.

b. Social Needs

As discussed previously in this Statement,[110] the majority of the individuals in the project area prior to redevelopment were single elderly males with an income of less than $200 per month, who lived primarily in residential hotels. The majority of the families had an income of less than $400 per month and were primarily renters. Although substantial relocation has taken place in the ensuing years, the characteristics of the remaining population exist in approximately the same proportions. (Refer to Exhibit 17 for the breakdown of the characteristics of the remaining population.)

The predominant characteristics of this population, such as old age, low-income, high incidence of disease (including alcoholism) and high dependence upon public income and other services, create a special need for certain social services and facilities proximate to the rehousing resources. These include easily accessible public transportation; low-cost commercial establishments, including restaurants, drug stores and grocery stores, health clinics; and social service centers.

c. Rehousing Resources

Pursuant to a Court Order of November 1970 resulting from the TOOR litigation,[111] the City and the Agency proceeded to construct or rehabilitate approximately 1500 units of low-cost housing. These units are listed on the attached Exhibit 18, and are the primary relocation resources for individuals displaced from the YBC project area. Approximately 589 of these units have been completed and occupied; and approximately 939 are under construction or planned.

In addition to these units, approximately 213 other low-income units are under construction in the City through HUD Public Housing or Section 236 programs. (Refer to Exhibit 18.)

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[110] Refer to Section III, C. "Project Area Composition, Prior to Redevelopment."

[111] Refer to Section III, G. of this Statement for a further explanation of this litigation.

EXHIBIT 17

Characteristics of Current YBC Displacees

	Individuals	%	Families	%*
Principle Source of Income:				
Wages	75	15.0	7	26.9
Savings, Investment, etc.	10	2.0		
Private pension	10	2.0		
Social Security	102	20.5	2	7.7
Veteran's Administration	45	9.0		
Workmen's Compensation	4	0.8		
Unemployment Benefits	19	3.8		
General Assistance	76	15.2	5	19.2
Old Age Assistance	22	4.4		
Aid to the Disabled	102	20.5	4	15.4
Aid to Families with Dependent Children			8	30.8
None	15	3.0		
Unknown	19	3.8		
TOTAL	499	100.0	26	100.0
Age:				
Unknown	7	1.4		
20-24	7	1.4		
25-29	23	4.6	3	11.5
30-34	17	3.4	3	11.5
35-39	29	5.8	2	7.7
40-44	44	8.8	2	7.7
45-49	55	11.1	6	23.2
50-54	46	9.2	2	7.7
55-59	59	11.8	2	7.7
60-64	71	14.2	3	11.5
65-69	50	10.1	3	11.5
70-74	38	7.6		
75-79	23	4.6		
80 over	30	6.0		
TOTAL	499	100.0	26	100.0
Sex:				
Male	470	94.2	22	84.6
Female	29	5.8	4	15.4
TOTAL	499	100.0	26	100.0

*Head of Household

SOURCE: San Francisco Redevelopment Agency, YBC site Office, 11/14/73

EXHIBIT 18

Low Income Housing Units

(Developed in Response to "Consent Order" of Nov. '70)

Resource	Program	Total Units	Types of Units			# Low Income*	
			0	1	2		
A. Completed							
1. Alexis Apts. Fifth & Clementina Sts	236	206	158	48		82(fed) 124(local)	
2. Vincentia Villa 1825 Mission	236	124	124			50(fed) 74(local)	
3. Cal. 1-37 31st & Geary	Public Hsg.	74	62	12		74	
4. Crescent Manor (Senate Hotel-Rehab) 467 Turk	221(d)(3)	92	92			92(fed)	
5. Western Park Apts** 1280 Laguna	236	11	11			11(fed)	
6. Salvation Army Harbor Lights-1275 Harrison	Private	65	65			65(priv)	
7. Salvation Army Chinatown Center - 1450 Powell	Private	17	17			17(priv)	
Sub-Total						589	
B. Under Construction							Date of Estimated Availability
8. Salvation Army Apts. Fifty & Clara Sts.	236	258	196	62		103(fed) 155(local)	March '74
9. The Alexander (Olympic Hotel-rehab) 230 Eddy	221(d)(3)	178	132	46		178(fed)	March '74
10. El Bethel Arms Apts.** 1320 Golden Gate Ave.	236	22	22			22(fed)	Feb. '74
11. Maria Manor (Ramona Hotel-Rehab) 174 Ellis	221(d)(3)	118	118			118(fed)	July '74

12. Marleton Manor (Roosevelt Hotel-Rehab) 240 Jones	221(d)(3)	150	140	10		150(fed)	March '74
13. Antonia Manor (Governor Hotel-Rehab) 180 Turk	221(d)(3)	131	131			131(fed)	Feb. '74
Sub-Total						857	
C. Planned							
14. Notre Dame Hospital (Rehab.) Van Ness & Broadway	236	206	161	45		82(fed)	June '75
Sub-Total						82	
TOTAL Low-Income Units Under "Consent Order"						1528	

Other Available Low-Income Units

15. Royal Adah Arms Apts. Turk & Fillmore	236	142	12	130		47(fed)	March '74
16. Cal. 1-19 (2) 1750 McAllister	Public Housing	97	76	21		97	March '74
17. Cal. 1-29 Arguello Blvd.	Public Housing	69	59	9	1	69	Jan. '74
Sub-Total						213	
TOTAL Low-Income Units						1741	

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* Low income units include those constructed under the Public Housing programs and those receiving federal or local rent supplements.

**The asterisked projects were planned prior to November 1970, but expanded as a result of the Consent Order. Therefore, only a small number of the total units are counted as meeting the requirements of the Consent Order.

Plan Change II and the TOOR settlement provide for four additional low-income housing projects on three sites within the Project area and on one site immediately adjacent to the Project boundaries.[112] Although the unit composition, rent schedules and construction dates have not yet been developed for these projects, it is estimated that approximately 400 studio and one-bedroom units will be constructed in the Project area and approximately 100 units adjacent to the area.

Low and moderate income family units will be available primarily in the Western Addition area where six Section 236 housing projects (approximately 1200 family units) are under construction or planned. Although first priority for these units is to go to residents or displacees of the Western Addition area, the number of units is adequate to also accommodate the remaining 26 families in YBC.

All of the elderly and family units will be made available to tenants at not more than 25% of their incomes. The difference between the tenants' abilities to pay and the actual unit costs will be financed by the Housing Authority's Annual Contributions Contract and operating subsidy provided by HUD in the case of public housing federal rent supplement payments in the case of Section 221(d)(3) program; and by federal interest reduction subsidies and either federal or local rent supplements in the case of the Section 236 program.

Federal rent supplement payments are allocated to subsidize low-income units for a period of forty years; the City of San Francisco's Rent Supplement Program provides payments for up to ten years with an option for extension on a case-by-case basis. Additionally, local or federal relocation assistance payments will be provided to those YBC residents who qualify to support moving expenses and to support increased rent costs for a period of four years for those who do not move into public or subsidized housing projects (refer to Appendix L).

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[112] Refer to Section III, E, 2 of this Statement, "Plan Change II" for a further description of these proposed sites.

Through these programs, adequate rehousing resources in the numbers, unit sizes, and within the displacees' abilities to pay are available to all YBC residents. The locational preferences can be accommodated for 82% of the individuals and 47% of the families. Those desiring housing out of the City, or in North Beach or in Outer Mission[113] will either have to relinquish their preferences and relocate in one of the above described units, or be dependent upon the vacancy rates of the normal housing stocks in those areas.

d. Social Resources

Surveys of the South of Market, North of Market, Western Addition and Mission rehousing areas were conducted by HUD in September 1972 and January 1973 to review the adequacy and comparability of social amenities and services in these areas. The latter three areas appeared to provide the services and facilities required for the unique YBC population and appeared comparable to those available to the YBC residents prior to redevelopment:

(1) Commercial establishments - such as grocery stores, drug stores, barber shops, clothing stores, laundromats, general merchandising stores, liquor stores, eating facilities and banks - are generally within a three block radius of each housing site. The cost of goods and services are generally comparable to those in and around the YBC project area;

(2) Twenty-four hour public transportation service is available at stops located within a two block radius of the housing sites;

(3) Public utilities and services such as gas, water, electricity, phone, sanitation, police and fire are adequately available to the dwelling units in the identified housing resources;

(4) Public agencies such as the Department of Social Services, Department of Human Resource Development, and Department of Public Health, which provide frequent assistance to a majority of the relocatees, have offices within walking distance of the rehousing resources or readily accessible by public transportation. The rehousing, in many cases, will

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[113] Sufficient elderly units were constructed in the Outer Mission area, but were occupied at a time when the Agency could not contact YBC residents due to the pending TOOR litigation.

be closer than units in the project area to welfare offices, Social Security offices, unemployment assistance offices, the San Francisco General Hospital, and other health facilities including emergency hospitals;

(5) Religious institutions as well as recreational facilities and activities are available to the residents of these areas. In most instances these amenities are within walking distance or easily accessible by public transportation. The housing projects themselves are planned to contain community rooms and some to have programmed recreational activities;

(6) Many of the elderly housing projects are required to provide a food service program at cost to residents if an interest in such a program is expressed by the tenants;

(7) There are no unusual topographical or environmental features - such as hills, inclement weather or flooding - which would make the areas difficult for elderly residents.

As a result of the relocation and demolition in the YBC project area, many of the commercial establishments and facilities which once served the South of Market area residents are no longer available. However, a number of facilities still remain, and certain new services are being provided through the new housing projects and other sources. A HUD survey conducted in September 1973 indicated the following services easily available to South of Market residents:

Health Services

New Start Center/referral, first aid and detoxification center
40 Holland Ct.

Cannon Kip/South of Market clinic

Salvation Army Harbor Lights (non-medical detoxification center)
Fourth Street

Department of Public Health Center/Fourth Street

Harriet Street Center/245 Harriet Street

Religious Services

St. Patrick's Church/Catholic

Services offered at the Salvation Army Harbor Lights

Education Services

Filipino Education Center/390 Fourth Street

Special Programs

St. Patrick's/meals and lodging programs

Salvation Army/Silver Crest Senior Citizens Residence and Club/extensive recreational, educational, health and social programs (to be expanded and provided to all residents of the area)

Filipino-American Neighborhood Association/336 Fourth Street/ referral, counselling, employment, social services

Legal Services

SF Legal Assitance/432 Natoma/OEO

Public Advocates/433 Turk Street

Recreational Facilities

South Park

Embarcadero YMBC

Transportation

Bus lines that serve South of Market/15, 25, 26, 27, 30, 42

Housing Projects

food services
laundry facilities
community centers and courtyards

The main deficiencies in the area surrounding the YBC Project appear to be the lack of commercial restaurants and grocery stores. In addition, some of the services listed above are located within the Project area and scheduled for eventual relocation; thus, their future availability is uncertain.

e. Social Impact

The impact upon the remaining area residents is likely to be mixed. Involuntary relocation tends to be a disruptive process for any person, but is particularly acute for elderly single individuals who often have greater difficulty adjusting to new surroundings and companions. To the extent that individuals are separated from their friends and those that they are accustomed to dealing with - such as landlords, entrepreneurs and welfare or social workers - they are likely to experience personal difficulty in the new surroundings.

These negative aspects will be mitigated somewhat in that many of the individuals will experience the positive effect of moving from substandard to recently constructed or rehabilitated standard housing, often at reduced cost to the tenant. In most instances, important services such as dining, community and laundry facilities will be located on the premises, with other needed services nearby.

The balance between the negative and positive impacts is difficult to determine, and is likely to vary in each individual case.

2. Relocation of Business Firms

The characteristics of the remaining businesses in YBC are shown on Exhibit 19.

In any city, the availability of commercial space is subject to a variety of market conditions. Unlike housing which, when constructed with public monies, can be developed and reserved to meet an indentified need, there are few similar programs for the development of commercial facilities. It is, therefore, difficult to identify or earmark a reservoir of resources for the use of displaced businesses. Thus, the past record of business relocation and the projections of the business relocation supervisor for YBC, are used here to gauge future relocations.

Applying the percentage of past business relocation performance to the remaining workload in YBC, future displacement can be projected as follows: (refer to Appendix L2).

Type of Business	Total	Relocate Within City	Relocate Outside City	Discontinue Operation
Manufacturing	7	4	1	2
Non-profit Organization	4	3	-	1
Business or Personal Services	34	11	10	13
Wholesale/Retail	56	34	13	9
Mom & Pop Stores	15	1	-	14
Professionals	14	12	2	-
	130(100%)	65(50%)	26(20%)	39(30%)

The projections of the YBC Relocation Supervisor vary from these predictions based upon his contacts with the YBC firms:

Manufacturing	7	4	3	-
Non-profit Organization	4	4	-	-
Business or Personal Services	34	27	4	3
Wholesale/Retail	56	34	10	12
Mom & Pop Stores	15	3	-	12
Professionals	14	13	-	1
	130(100%)	85(65%)	17(13%)	28(22%)

EXHIBIT 19

YBC Business Firms

Type and Number	Average Sq. Ft.	Average No. of Employees	Areas of Preference
MANUFACTURING (7)			
Light	5,500	7	South of Market (4)
Heavy	10,000	27	Out of City (3)
Garment	3,000	5	
NON-PROFIT ORGANIZATIONS (4)	3,500	11	South of Market (4)
BUSINESSES & PERSONAL SERVICES (34)			
Repair Shops	1,500	4	Financial District/
Order Houses	600	2	Market Street (34)
Hotel/Rental Units	11,000	5	
Rest./Bars	1,600	5	
Parking Lots	14,000	2	
Gas Stations	3,000	3	
Financial Institutions	4,100	1	
Other	900	3	
WHOLESALE/RETAIL (56)	3,200	7	Within City Limits (34) Out of City (10) May discontinue opera.(12)
MOM & POP STORES (15)			
Grocery	900	2	South of Market (2)
Barber	300	2	Mission District (1)
Laundry	800	3	Polk Street (1)
Cafe	600	2	Union Street (1)
Other	600	2	
PROFESSIONALS (14)			
Accountants	300	3	Financial District/
Attorneys	1,500	3	Market Street (14)
Engineers	600	2	
Architects	1,000	3	
TOTAL (130)	68,500	104	

Past Relocation statistics further indicate that of those who have discontinued their businesses (33% of the workload) all have done so for one or a combination of the following three reasons: (refer to Appendix L2).

(1) Economic restraints, e.g., higher rent fees for the replacement site or limited working capital to reestablish business (58%);

(2) Loss of existing patronage (22%); and/or

(3) Retirement or death (20%)

Of the businesses that continued operations approximately 75%, or 67 businesses, maintained previous staff levels; 16%, or 14 businesses, hired additional staff after relocation; and approximately 9%, or 8 businesses, lost personnel.

Based upon the past performance and the assessments of the Relocation Supervisor, the following estimated range of projections can be made for the remaining businesses in the area.[114]

(1) It appears that 22% to 30% of the remaining businesses (29 to 39) will discontinue operations; of these, approximately 80% (23 to 31) will do so involuntarily (i.e., due to economic restraints or loss of patronage);

(2) Of those firms continuing operations (91 to 101):

- 75% will maintain current staff levels (68 to 76 firms);
- 16% will hire additional staff (15 to 16 firms); and
- 9% will experience a loss of personnel (8 to 9 firms)

Relocation can then be assumed to have a positive impact on those firms experiencing an increase in staff (approximately 12% of the total), and a neutral or negative impact for the remaining firms. The most negative effect is likely to be upon those firms which must involuntarily discontinue operations or experience a loss in staff (28-37%).

Federal relocation benefits are available to business firms that are eligible to minimize the negative impact of displacement. They cover moving expenses, property losses, and expenses in searching for a replacement location, or, alternatively, can be in the form of a fixed payment for those firms discontinuing operations (refer to Appendix L1).

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[114] The projections are very rough in that future economic trends are likely to somewhat alter the pattern of past performance.

E. Traffic, Noise and Air Quality

1. Traffic

a. Project Location and its Relationship to Traffic Corridors and Transport Facilities

The Yerba Buena Center is located in downtown San Francisco adjacent to the financial and retail center of the City. The Project is in a focal location in terms of traffic corridors and transport facilities.

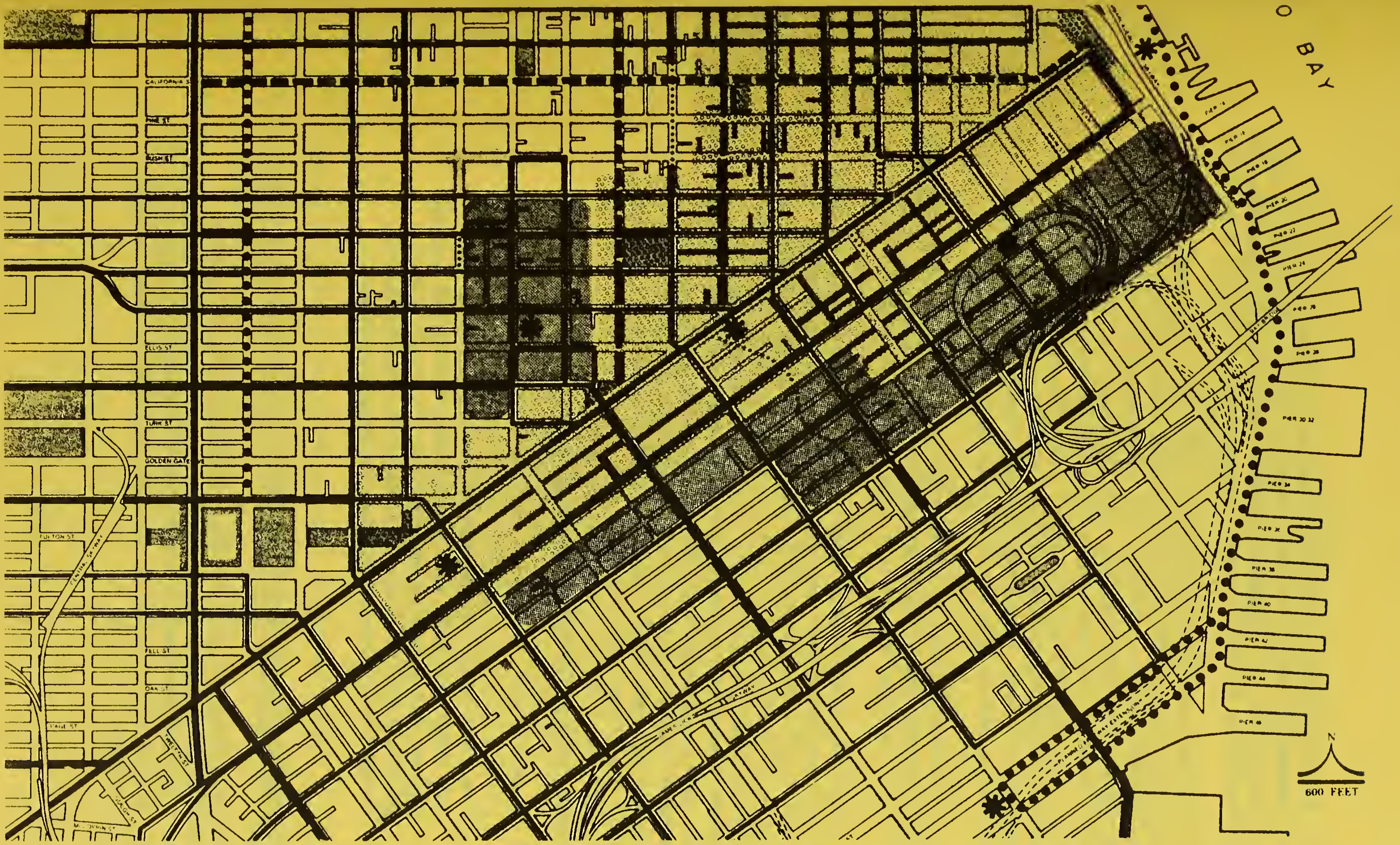
The recently constructed Powell Street Bay Area Rapid Transit (BART) Station opens immediately into the Project area and will be connected to the Central Blocks area by a major pedestrian concourse. The Montgomery Street BART Station is two blocks northeast of the project. This rapid transit system links the East Bay, San Francisco, and Daly City.

The Southern Pacific Railroad depot is three blocks south of the Project area at Third and Townsend Streets, and services persons from the Peninsula, as far south as San Jose. The TransBay Bus Terminal is located two blocks east of the Project area at First and Mission Streets. Major commuter service to this terminal is provided by the AC Transit, Greyhound Bus, Continental Trailways and Santa Fe bus systems. All municipal streetcar lines and the Geary and Mission Street buses also stop at this terminal.

The downtown airlines bus terminal is approximately four blocks north of the Project area; the Seventh Street Greyhound depot is approximately three blocks to the west; and the Ferry Building, servicing Marin Greyhound and the Sausalito and Tiburon Ferries, is approximately seven blocks east, at the end of Market Street. Excellent transfer lines are available from all of these locations, directly to the Project area.

Market Street, previously a major automobile thoroughfare, is currently being transformed into a major pedestrian and mass transit corridor. Following construction of the BART corridor, the City is proceeding to underground the streetcar lines, all of which begin and end their routes

EXHIBIT 20



TRANSPORTATION PLAN FOR DOWNTOWN AND VICINITY

░ DOWNTOWN CORE Automobile Control Area	PRIMARY VEHICULAR STREET	✱ METROPOLITAN TRANSIT TERMINAL	SPECIAL TRANSIT SYSTEMS
▓ PARKING BELT	━ TRANSIT ARTERIAL STREET	━ Existing BART/MUNI STATION	▬ ▬ ▬ Cable Car Route
▒ PARK	— PEDESTRIAN/TRANSIT/ SERVICE STREET	▭ Proposed BART/MUNI STATION	● ● ● ● Special Vehicle System
			.... Special Shuttle System

Source: Transportation Element of the San Francisco Comprehensive Plan down Market Street. Muni bus routes service the Project area primarily along Market, Mission and Third Streets, and a privately-owned system of jitney buses provide inexpensive service along Mission Street between Daly City and downtown.

Despite the excellent public transportation systems servicing the area, the Project area is also subject to intensive automobile traffic. It is located between the James Lick Bayshore Freeway and the downtown core area. Major freeway entrance and exist ramps heading both east across the Bay Bridge and south down the Peninsula are located in the block immediately southeast of the Project boundaries. Exit and entrance ramps to Highway 280 are located approximately three blocks to the southeast.

Major one-way streets pass through the Project area carrying traffic along east-west and north-south corridors to and from the downtown core area.

In addition, the Project area has long been a major source of low-cost transient and all-day parking facilities, increasing its magnetic draw for the private automobile. Prior to redevelopment, there were approximately 3,200 parking spaces in the area. Following demolition and clearance activities, numerous temporary surface parking lots were established in the area, raising the total number of parking spaces to approximately 4,300. The proposed project would replace these spaces with approximately 4,100 new parking spaces.

b. Current Traffic Demand - South of Market

(1) Peak Period

The most recent transportation studies[115] in the Bay Area indicate that approximately 62,283 persons exited the South of Market area in 1965 during peak hours[116] for the following destinations and using the following modes of transportation:

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[115] Bay Area Transportation Study, Bay Area Transportation Commission May 1969

[116] The peak period is defined as that two-hour period during which the largest amount of travel occurs. Generally it is from 4-6 p.m. in downtown San Francisco. Although slightly lighter, a peak period also occurs during the morning hours, generally between 7-9 a.m.

TABLE I
South of Market - Peak Period, 1965

Destination	Mode of Travel				Totals	% of Total Trips
	Transit	%	Auto	%		
San Francisco	16,445	53%	14,846	47%	31,291	50%
East Bay	6,026	42%	8,267	58	14,293	23%
Peninsula	6,065	46%	7,242	54	13,307	21%
North Bay	601	18%	2,791	82	3,392	6%
TOTALS	29,137	47%	33,146	53%	62,283	100%

As shown on Table I, 50% of the peak hour traffic from the South of Market area is currently attributable to San Francisco residents, who are also the largest users of public transportation. Approximately 47% of the total peak period movements are by transit, and the remainder by automobile.[117]

In projecting future peak hour traffic in the South of Market area, the percentage modal split is likely to be altered in two ways:

- Employment trends: The total population in San Francisco has declined since 1960 and is expected to remain stable over the next decade and increase slightly between 1980 and 1990.[118]

  Currently, San Francisco's economic base has been changing rapidly from manufacturing to services, creating an increase in residents commuting out of the City in search of blue-collar jobs. Consequently, the percentage of San Francisco residents working in the City has been declining, while the percentage of non-resident commuters has been increasing.[119] The increase in San Francisco employment between 1965 and 1990 is expected to be composed of 26% San Francisco residents and 74% non-residents, as follows:

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[117] Includes trucks, taxis and private or rental cars.

[118] Population Projections for San Francisco 1960-1990 Department of City Planning, April 1968.

[119] Transportation Conditions, Problems & Issues, Background Studies for the Comprehensive Plan, Department of City Planning, Jan. 1971, pp. xi-xii.

Table II
Projected Employment[120]
San Francisco

	1965	1990	Amt. Growth	% of Total Growth
Total	476,400	714,000	237,600	100%
Resident	290,750	352,350	61,600	26%
Non-res.	185,650	361,650	176,000	74%

These percentages will be used in modal split for projecting YBC generated traffic[121] as more representatives of future trends than the current 50/50 split between residents and non-residents.

Of the non-residents, it is likely that the relative proportion of East Bay commuters will increase in relationship to the other two suburban corridors, if improved transportation facilities are not provided for the North Bay and the Peninsula. However, it is difficult to project what that proportional change might be; thus, the 1965 non-resident modal split is retained in this regard.

- BART: The availability of BART service from the East Bay, combined with the limited capacity of the Bay Bridge,[122] is expected to substantially increase the percentage of transit travel to and and from that area.

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[120] Op. cit., Transportation Conditions, pp. 37, 38 and 65, based upon statistics from BATS.

[121] It is difficult to project what portion of the growth in San Francisco employment is likely to be in the downtown area. Due to the minimal number of blue-collar jobs available, the increase in the downtown area could be less than 26%.

[122] The Bay Bridge capacity is approximately 12,000 person-trips during a two-hour period. Source: Transportation Conditions, p. 84.

It is estimated that the modal split will shift to 70% transit and 30% auto by 1975 for travellers to and from the East Bay.[123]

(2) Non-Peak Periods

Non-peak hour traffic patterns are not specifically available for the South of Market area. However, for the total downtown area, non-peak hour movements in 1965 constituted approximately 52% of the total undirectional movements on an average weekday. Stated differently, there were 170,900 peak hour trips and 184,442 non-peak hour trips. Since the non-peak hour trips are dispersed over a far greater time period, the impact of this travel is merely a fraction of that attributable to peak hour traffic. Although an increase in non-work travel is anticipated, as a result of increasing incomes and leisure time, the concentration of such traffic is not likely to approach that of peak period travel.

c. Current Transport Capacity - South of Market

Although the Project area streets are not heavily taxed during non-peak hours, during peak hours the streets in South of Market are heavily travelled, with cars backed up at the freeway entrance ramps, causing further congestion in the area.

In 1965, the traffic patterns on the major westbound streets in the Project area were as follows:[124]

Table III
Project Area - Peak Period Traffic

Street	Off-Peak Vehicles/hr.	M.P.H.	Peak Period Vehicles/hr.	M.P.H.	% Incr. in Vehicles
Howard	810	17	1260	15	55%
Folsom	540	17	1065	15	97%
Harrison	1000	19	1440	61	44%

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[123] *Op. cit.*, *Transportation Conditions*

[124] *San Francisco Downtown Parking and Traffic Survey*, Part II, Downtown Traffic, Department of Public Works, December 1970, pp. 11,12.

A report prepared by DeLeuw, Cather & Co., for the Project's Executive Architects[125] indicates that each of the major one-way streets in the area have a peak period capacity of approximately 330 vehicles per hour. The assessment of the Metropolitan Transportation Commission is that the streets in the area are currently at or near their capacity.[126]

Highway links with the three suburban corridors (East Bay, North Bay, and Peninsula) are presently saturated during commuter peak periods.[127]

The parking facilities in the Project area are currently filled to their practical capacities,[128] primarily serving all-day parkers who work in the financial district. The parking availability across Market Street to the north reflects a deficiency in supply versus estimated demand.[129]

Certain of the mass transportation systems are not used to capacity and, therefore, could accomodate additional passengers as follows:[130]

Marin Greyhound - Plans are underway by the Golden Gate Bridge, Transportation and Highway District to provide an expanded bus system to increase passenger capacity by 50%.

AC Transit and Contra Costa Greyhound - These services are currently filled to capacity (41,600 persons) during peak periods; however, BART is expected to absorb a large percentage of their passengers.

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[125] Yerba Buena Center Traffic Access and Capacity, DeLeuw, Cather & Co. Engineers, Feb. 11, 1972.

[126] Metropolitan Transportation Commission, Appendix to the Final EIR for Yerba Buena Center.

[127] Op. Cit, Transportation Conditions, p. XV.

[128] The "practical parking capacity" is somewhat less than the total number of spaces available, due to brief periods of vacancy during parking turnover. During daytime hours, 85% of the available spaces is considered to be the "practical parking capacity". During nighttime hours, it is slightly higher, at 90%. Source: DPATS, Part I. Downtown Parking, November 1966, p. 18.

[129] Ibid, Plate 30, p. 39," Projected 1975 Parking Space Deficiency."

[130] Op. cit., Transportation Conditions, pp. 48-50.

BART - This service is planned to accomodate 71,600 person trips daily in its transbay service by 1975. The 1965 average weekday travel from the West Bay to downtown San Francisco by all modes of transportation was a total of 56,568. Thus, BART is expected to have substantial excess capacity for many years to come.

Southern Pacific Railroad and Western Greyhound - These services from the Peninsula are close to capacity during peak periods (23,000 persons). No definite plans are currently underway to improve transit capacity to and from the peninsula.

SF Municipal Railway - Although currently filled to capacity (475,000 passengers per weekday, with 416,100 travelling to and from the downtown area), a massive equipment replacement program is currently underway, which together with the undergrounding of the streetcar system, is expected to increase service efficiency and capacity. BART is also expected to absorb a portion of the Muni passengers.

d. Potential Impact of the Proposed Project

There are two major factors to consider in determing the impact of the proposed Project:

1. Project Activities - how many autos will the Project activities generate; and
2. Parking facilities - how many autos will the Project accomodate.

(1) Project Activities

Increased peak hour commute traffic will result primarily from the increased employment in the area. It is projected that total employment in the area will be approximately 35,528 persons in 1983.[131] If the modal split of 1965 persists,it can be expected that 77% of all work trips will exit

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[131] Refer to Section IV, F., of this Statement, "Economics and Financing" for a breakdown of the employment figures.

Table IV
Projected YBC Peak Period Work Trips
1985

A. Modal Split

Destination	% of Total Peak Period Work Trips	% Transportation Mode Transit	Auto	Total
San Francisco	26%	53%*	47%	100%
East Bay	34%	70%	30%	100%
Peninsula	32%	46%	54%	100%
North Bay	8%	18%	82%	100%

B. Projected Amount

Destination	# of Peak Period Work Trips**	# by Transportation Mode Transit	Auto
San Francisco	7,113	3770	3343
East Bay	9,302	6511	2791
Peninsula	8,755	4027	4728
North Bay	2,189	394	1795
Totals	27,359	14,702	12,657

*The 1965 modal split for San Francisco residents is likely to be adjusted in favor of transit travel in future years, as a result of the commencement of BART service and the speedier, more efficient service provided by the undergrounded streetcars. However, there is no basis for projecting that split at this point, thus, the 1965 split is used here.

**Approximately 8,171 work trips are projected to exit the downtown area during off-peak hours.

the downtown area during the afternoon peak period. Thus, it is estimated that YBC employment will generate 27,359 peak period person movements. Table IV presents the adjusted modal split applied to the projected YBC employment, and projects that 12,657 of these persons are expected to exit the Project area by automobile during the afternoon peak period.

Other traffic generators in the Project area will be the Exhibit Hall, the Hotel, the Sports Arena, the Theater, the Apparel Mart and the retail stores. The Exhibit Hall is estimated to generate an average of 10,500 delegates per convention, and could accomodate a maximum of 50,000 delegates. The experience of past conventions indicates that approximately 35% of the delegates rely upon automobiles or taxis, while the remainder use mass transit or walk. Approximately two-thirds of the convention center visitors exit the hall during the afternoon peak period. It is estimated that the average person movements generated by the convention complex will be as follows:[132]

Table V

Projected YBC Delegate Trips - Peak Period

Destination	Walk or Transit		Autos*		Totals	
	#	%	#	%	#	%
San Francisco	4,536	81%	1,064	19%	5,600	100%
Peninsula	--	-	700	100%	700	100%
East Bay		-	700	100%	700	100%
Totals	4,536		2,464		7,000**	

*Includes taxi

**Approximately one-third, or 3,500 are projected to exit the area during off-peak hours.

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[132] Op. cit., Arthur D. Little & URS Research Co., pp V-G-14 and V-G-16. The modal split is based upon statistics from the SF Visitors and Convention Bureau and is applied here to the adjusted estimate of average delegates attendance. (Refer to Section IV., F of this Statement for a discussion of projected convention business).

At any time that the convention center is being used to its maximum capacity, the modal split indicates that as many as 11,739 convention visitors would exit the Project area by automobile during the peak period.

Other Convention Center traffic will be generated by public shows and exhibits which attract Bay Area residents. These trips are likely to be dispersed over a considerable period of time, and not likely to fall during the peak hour periods. Most shows and special exhibits are likely to occur during the evenings and on weekends when they can attract the public. It is estimated that the maximum number of persons exiting such events at one time would be 10,000. The vast majority (close to 79%) of these persons are expected to travel by automobile.[133]

The hotel is expected to accomodate a maximum of 980 guests, most of whom will be travelling short distances within the city, with their movements dispersed over a large period of time. Hotel guests are unlikely to contribute significantly to peak period traffic. A maximum of 70 guests are estimated to exit the Project area by automobile during the peak period; approximately 126 others will exit at this time by transit or on foot.[134]

The Sports Arena and Theater are likely to generate surge crowds in the evenings and on weekends, at the beginning and conclusion of major events. The average person movements for these events are as follows:

Table VI
Night Event - Surge Traffic

	Mass Transp.	Auto	Ave. Attendance
Sports Arena	1,690	4,560	6,250
Theater	388	1,052	1,440
Totals	2,078	5,612	7,690

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[133] Op. cit., Arthur D. Little & URS Research Co., p. V-G-13 and V-G-20. Based upon BATS estimates of non-work trips.

[134] Ibid. pp. V-G-14 and V-G-16. Modal distribution "C" is applied to a revised estimate of maximum hotel occupancy of 980.

At times when these facilities are operating at full capacity, the surge of person exits by vehicles could be as high as 14,235 for the Sports arena and 1,752 for the Theater.[135]

The Apparel Mart and retail shops in the area are expected to generate vehicular traffic during the off-peak daytime hours. However, a large percentage of visitors to these facilities will travel by automobile rather than transit.[136] The Department of Public Works has estimated that department stores generate 2.54 vehicular trips per day for every 1,000 square foot of gross floor space.[137] Applying this figure to the Apparel Mart and retail shops, it can be estimated that as many as 3,630 vehicle trips per day could be generated by these facilities. Subtracting vehicle trips by employees, covered in Table IV above, the average visitor vehicle trip is estimated at 3,130 per day during the off-peak daytime hours.

Summary of Vehicles Generated by Project Activities

Table VII
YBC - Generated Afternoon Peak Period Vehicles

	Person Movements by Vehicle		# of Vehicles	
	Ave.	Max.	Ave.	Max.
Employment	12,657	12,657	9,041	9,041
Convention Hall	2,464	11,739	1,760	8,385
Hotel	55*	70	39	50
Totals	15,176	24,466	10,840	17,476

*Based upon 1.4 persons per vehicle. Source: DPATS, Parts I, Downtown Parking, p. 15.
**Based upon 80% occupancy.

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[135] Op. cit., Arthur D. Little & URS Research Co., pp V-G-14, V-G-16; modal splits based upon BATS non-work estimates; adjusted to reflect revised average attendance at Sports Arena. Maximum attendance at the Sports Arena is 19,500 and, for the Theater, 2400.

[136] Op. cit., Transportation Conditions, p. 70, Table 7. Approximately 66% of all non-work trips to the downtown area are by automobile.

[137] Op. cit. DPATS, Part I, Downtown Parking, p. 5.

Table VIII
YBC - Generated Nighttime Peak Period Vehicles

	# of Person Movements by Vehicles		# of Vehicles	
	Ave.	Max.	Ave.	Max.
Public Exh.	2,920	7,300	2,085	5,214
Sports Arena	4,560	14,235	3,257	10,168
Theater	1,052	1,752	751	1,251
Totals	8,532	23,287	6,093	16,632

The total off-peak person movements are likely to average 21,291, with a maximum of 46,085. A large portion of these are expected to be by automobile (approximately 66%) and will be dispersed over several hours. The average number of off-peak vehicles is estimated at 10,037, while the maximum is estimated at 21,726.[138]

The maximum vehicles generated during off-peak hours (approximately 21,736) and during nighttime surge traffic (approximately 16,776) are significantly less than the 2-hour evening peak traffic recorded in 1965 (approximately 33,146). Since the off-peak traffic is dispersed over a longer time span, and the nighttime traffic will not be competing with other vehicles, these sources are not expected to tax the existing transport systems.

However, if allowed to occur as projected, the afternoon peak hour traffic generated by YBC would increase by more than 50% the South of Market peak period traffic recorded in 1965, and could be expected to have a major adverse impact upon traffic patterns and congestion in the area.

The major constraint upon the projected increase of peak period traffic is the limited availability of parking facilities in the area.

(2) Parking Facilities

The proposed number of parking spaces in the YBC Project is as follows:

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[138] Based upon 1.4 persons per vehicle.

1800 spaces	- public garage
600 spaces	- private apparel mart garage
316 spaces	- completed public garage extension, Fifth & Mission Sts.
1203 spaces	- parking in private developments
181 spaces	- on-street
4100	

These new spaces will replace approximately 4,300 temporary low-cost parking spaces currently operating in the Project area. Since parking facilities in the surrounding area are currently filled to their practical capacities, the persons who are now parking in the Project area will be forced to compete for the new facilities or relinquish their automobiles as a means of commuting to work.

In an effort to further reduce the number of persons using these facilities for all-day commuter uses, it is the policy of the City to charge high daily rates in the public parking garage to discourage commuter use.

Estimates prepared by DeLeuw & Cather[139] project that 3900 off-street parking spaces[140] in the area will produce 2,548 afternoon peak period movements. This limitation upon the parking capacity in the area would reduce by 15,197 the possible peak hour vehicular movements as projected by the modal split. This would be a slight reduction from the approximately 2,810 vehicles currently exiting from existing spaces in the area.

The demand for additional spaces in the South of Market area will be great, and the City's response to this demand will determine the ultimate traffic impact of the proposed Project.

If no additional spaces, other than those currently proposed, are permitted in the South of Market area, there is expected to be a slight reduction in peak period automobile traffic exiting the area. For every new facility that is permitted, a proportionate increase in vehicular traffic can be expected.

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[139] *Op. cit.*, *YBC Traffic Access and Capacity*

[140] The 181 on-street spaces are not expected to be used by commuters.

The City policy is mixed in this regard. A stated policy of the City is that "... all additions to the commuter load as a result of job growth in the City should be accomodated by public transit. Consequently, the (Transportation) Plan does not recommend new facilities which would increase the number of cars entering the city. Automobiles cannot be the primary means of commuter travel."[141] However, the Transportation Plan also states that "... vehicles should be intercepted at parking facilities located around the core next to major thoroughfares so that uncongested movement and high internal accessibility may be provided within the core. These facilities would be designed as replacements for those on-street spaces pre-empted by service or pedestrian needs within the core." They also would be designated as short-term parking facilities.[142] Portions of the South of Market area is designated for such parking facilities.

If additional parking facilities are permitted in the South of Market area, a negative environmental impact is expected to result.

(3) Other Impacts

(a) Service Traffic

Access and loading zones for service and delivery vehicles have been provided underground for the Public Facilities, and, therefore, are not expected to interrupt the regular flow of traffic.

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[141] "Transportation Element" of The Comprehensive Plan, prepared by the Department of City Planning, approved by City Planning Commission April 27,]972, p. 4.

[142] *Ibid.*, p. 24

(b) Traffic during Construction

A short-term negative impact is expected during the construction period, when traffic will be interrupted by such activities as utility relocation and the flow of construction vehicles and workers. Efforts will be made to mitigate this impact by providing queuing space for vehicles within the site, using tunneling rather than open ditches for the relocation of utilities, and limiting major street work to off-peak hours.

(c) Pedestrian Traffic

There will be a significant increase in pedestrian traffic both during the peak period working hours and during the nighttime peak period when persons are exiting from the various evening events. The total person movements from the Project area during the afternoon peak period are estimated at an average of 34,515 and a maximum of 39,294, while the average and maximum pedestrian traffic following nighttime activities are estimated at 11,690 and 31,900 respectively.[143]

These will be diverted somewhat from conflicting with the vehicular traffic by the pedestrian overpasses and the concourse connection with the Powell Street BART station. However, a small degree of traffic conflict and a large degree of pedestrian congestion can be expected during these times.

(d) Impacts of the proposed Plan Changes

The three proposed housing sites are expected to house approximately 500 elderly residents. Based upon experience in other low-cost elderly housing projects, it is estimated that a maximum of 25% of these residents will own automobiles which they will use infrequently, and seldom use during peak hours. The total peak hour traffic would be substantially less from these units than from the originally proposed office buildings which would house approximately 750 employees, 77% of whom would be exiting the project area during the afternoon peak period.

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[143] Assuming simultaneous use of the theater, sports arena and convention center.

The proposed hotel would also generate less total and peak hour traffic than the office building originally approved for that site, which would have housed approximately 2,750 employees.

e. Summary

As long as the tight supply of parking facilities remains as a limiting factor upon peak hour commute traffic, the projected modal split for the area cannot be realized, and the Project is not expected to increase peak period traffic, nor jeopardize the existing street capacity. However, any increase in the number of parking spaces in the South of Market area, beyond those currently planned, can be expected to proportionately increase peak period vehicular traffic and, thus, create negative environmental impacts.

The Muni, BART and Marin Greyhound systems will be able to accomodate the increase in transit passengers from San Francisco, the East Bay and the North Bay. However, transit facilities from the Peninsula are currently taxed to capacity even without the projected increase in passengers, with no immediate plans for expansion.

Off-peak and nighttime vehicular traffic can be expected to increase substantially as a result of the proposed Project. However, the total street loadings during these periods will be significantly below that of the afternoon peak period, and will not threaten the existing street capacity.

Pedestrian traffic in the South of Market area will be heavily increased, particularly during the afternoon and nighttime peak periods. A small degree of pedestrian/vehicular conflict can be expected, and substantial pedestrian congestion is projected.

Construction activities during the early years of the Project can be expected to create traffic disruption and increase congestion. Planned mitigating measures are likely to keep this short-term negative impact to a minimum.

2. Noise

a. Background

The degree of disturbance or annoyance of an unwanted noise depends essentially upon three factors: (1) the amount and nature of the intruding noise, (2) the amount of background noise present before the intruding noise and (3) the nature of the working or living activity of the people occupying the area where the noise is heard.

Regarding the nature of noise, three attributes are of significance:

(a) frequency distribution of the noise;
(b) intensity of the noise (noise level); and
(c) the time pattern of the noise.

Humans have better hearing sensitivity in the high frequency region than in the low frequency region, so it follows that high frequency noise will seem more pronounced than low frequency noise to human listeners. The A-scale weighting of the frequency network emphasizes the high frequency of noise, and A-scale sound levels correlate well with human judgments of or disturbance of noise.

The time pattern of the noise can be related both to the time characteristics of the noise source and the time at which the noise is heard. A smooth continuous flow of noise is more comfortable or acceptable than impulsive noise of intermittent noise, even though all these noises might be judged as unwanted. Related to traffic noise this suggests that a steady flow of traffic and a steady-state continuous noise level are less objectionable than intermittent flow with time-varying noise levels.[144]

b. Approach and Method

In the proposed YBC Project, the nature of intruding noise is considered to be present and future vehicular noise. The amount was determined from (a) extensive sound measurements taken by the URS Research Company for the State of California required Environmental Impact Report, and (b) calculations for present and future vehicular traffic using formulation outlined in Exhibit 21. Background noise determinations were picked from the tapes of the URS Research Company measurements.

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[144] Bolt, Beranek and Newman, Inc. Fundamentals and Abatement of Highway Traffic Noise, Testbook and Training Course prepared and Presented by Bolt, Beranek and Newman for the Offices of Environmental Policy, Federal Highway Administration, U. S. Dept. of Transportation.

The techniques of noise determination and forecast used in this report are as follows:

> From the data supplied by the City of San Francisco (ADT, peak and Off-peak loads, truck factors, etc.) traffic models were generated which generally represent what occurs on the streets. Then, literally counting the noise output, unit by unit, noise contours were built up. These noise output figures were then compared with the measured figures taken by URS Research Company. Comparison was favorable and within the limits of accuracy expected.

c. Criteria

The Department of Housing and Urban Development, in its stated purpose (Circular 1390.2) and its guidelines[145] requires that, in those areas with federal housing assistance, outside and inside living areas be subject to the following criteria:

1. Unacceptable

Exterior	Interior Sleeping Areas
-Exceeds 80dB(A) 60 minutes per 24 hours. -Exceeds 75dB(A) 8 hours per 24 hours	-Does not exceed 55dB(A) for more than an accumulation of 60 minutes in any 24 hour period, and -does not exceed 45dB(A) for more than 30 minutes during night time sleeping hours from 11 pm to 7 am and -does not exceed 45dB(A) for more than an accumulation of 8 hours in any 24 hour day.

2. Discretionary - Normally Unacceptable	NA
-Exceeds 65 dB(A) 8 hours per 24 hours. -Loud repetitive sounds on site.	

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[145] U.S. Department of Housing and Urban Development-Noise Assessment Guidelines, TE/NA-171 and Technical Background TE/NA-172.

3. Discretionary - Normally Acceptable	NA
-Does not exceed 65dB(A) more than 8 hours per 24 hours.	
4. Acceptable	
-Does not exceed 45dB(A) more than 30 minutes per 24 hours.	-For multifamily structures... floors and dividing walls between dwelling units having Sound Transmission Class (STC) of less than 45.

The City of San Francisco adopted a noise ordinance in 1973 which sets noise limits for fixed sources in specific zoning districts as follows:

	Zoning District	Time Period	Sound Level-dBA
low density residential	R-1-D, R-1, R-2	10 pm - 7 am	50
		7 am -10 pm	55
high density residential	R-3, R-3.5, R-4, R-5, R-3-C, R-3.5-C, R-4-C, R-5-C	10 pm - 7 am	55
		7 am -10 pm	60
Commercial	C-1, C-2, C-3-0, C-3-R, C-3-G	10 pm - 7 am	60
		7 am -10 pm	70
Industrial	M-1	Anytime	70
	M-2	Anytime	75

Although these criteria apply to fixed sources only and, therefore, are not applicable to traffic noise, they help to describe the importance of providing different levels of noise protection for varying land uses. The Department of Transportation has further clarified noise/land use relationships and requirements as follows:[146]

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[146] U.S. Department of Transportation, Policy and Procedure Memorandum 90-2, "Noise Standards and Procedures," February 8, 1973.

Land-Use Category	Design Noise Level - L_{10}	Approximate Daytime L_{50}	Description of Land-Use Category
A	60 dB(A) (exterior)	50 dB(A)	Tracts of Land in which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	70 dB(A) (exterior)	60 dB(A)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, picnic areas, recreation areas, playgrounds, active sports areas, and parks.
C	75 dB(A) (exterior)	65 dB(A)	Developed lands, properties, or activities not included in categories A and B above.
D	-	-	For requirements on undeveloped lands see paragraphs 5.a(5) and (6) of U.S. Code, Federal Highway Administration Policy and Procedure Memorandum 90-2, April 1972.
E	55 dB(A) (interior)	45 dB(A)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

d. Impact

The overall daytime and nightime average noise levels in the area (L_{50}) already exceed several of the standards, at 70-71 dB(A) and 65-66 dB(A), respectively. These levels are particularly undesirable for residential purposes.

Although the YBC area is generally zoned for commercial, office and industrial uses, it also contains existing and proposed residential parcels as permitted or potential uses. Certain architectural and acoustical techniques, although costly, can be applied to any new structures within the project area to buffer noise and decrease interior noise levels. However, existing properties are subject to the same noise exposure and most often do not have the benefit of structural protection. For these properties, the existing environment could be considered to have a negative impact upon the Project area.

As discussed previously, the forecast traffic for the YBC project as planned will not follow the classic pattern of two to three time increase over the next ten years. The parking capacity is such that a traffic increase in peak period commuters is not possible without expansion of these facilities. However, the project will effect the noise level in other ways and at other times.

It is estimated that the increase in daytime transient traffic and nightime surge traffic to and from the central blocks facilities could increase the average noise level (L_{50}) approximately 2 dB(A), and in some instances as much as 3 dB(A). By 1982 the average noise levels in the area, including YBC could reach as high as 76 dB(A) if the projected growth in traffic to and from the downtown area goes unchecked.

An additional contributor to this increased noise level is the expected "canyon effect" of the completed project, discussed in the previous section. The buildings will serve somewhat as an acoustical backboard, intensifying the concentration of noise in the area.

To bring this area of the City within acceptable noise standards, it would actually be necessary for the project to substantially reduce the existing noise level in the area. This could be addressed to a certain degree by further limiting the parking capacity in the area. However, this would not totally solve the problem since there are only 4,100 parking spaces in the area and over 35,000 automobiles exit the City through the South of Market area during the afternoon peak period. Further mitigation could be effected by reducing the canyon effect through designing irregular forcades, which decrease the amount of noise deflection.

Construction Noise

During construction, noise intensities can and will vary depending upon the stage of construction and upon the techniques used. During excavation, transport trucks can generate as much as 90 to 92 dBA coming up the ramps to the street level. In transit 82 to 87 dBA may be generated, depending upon grade, traffic conditions and traffic controls. Residences along the route of travel would thus be effected.

The noise intensity will be greatest during the early construction stages when the major development of the Central Blocks area is underway. This intensity will be reduced as construction proceeds to the peripheral blocks, and private office development. The construction of these latter facilities will be dispersed over a far greater time period, avoiding the concentration of activities which will occur in the Central Blocks area. In addition, high rise buildings experience noise reduction with height above critical levels as the source of the noise moves farther above street level.

The City's noise ordinance places certain limits upon the level of noise output from construction equipment, which should serve to somewhat mitigate the potential negative impact during this phase. Unless a special permit is obtained, demolition, excavation and construction activities will be prohibited between the hours of 8:00 p.m. and 7:00 a.m. All powered construction equipment, with the exception of impact tools, are regulated by a maximum emission standard of 85 dB(A) when measured at 100 feet, to be further limited to 80 dB(A) by late 1976. Impact tools shall be required to have exhaust mufflers which assure maximum attenuation of noise. Enforcement of these provisions is delegated to the Department of Public Works with penalties provided in an amount not to exceed $500 or six month imprisionment.

The negative impact of construction noise can be mitigated somewhat by the adoption of alternative means of transporting excavated material, limiting work to daytime hours, barricading against noise transmission, and applying muffling devices to construction equipment. However, even with these mitigating measures, a short-term negative impact of excessive noise would still exist during the construction phase.

e. Summary

Current noise levels in the Project area exceed acceptable standards for many of the existing and proposed land uses. The proposed Project will seriously aggravate this situation during the short-term construction phase, but have a relatively minor negative impact in the long-term unless the expansion of existing parking facilities is authorized and, thus, projected traffic levels are increased. The projected noise impact could be reduced somewhat if the planned parking facilities in the area were further limited, and if design techniques were employed to both minimize the expected canyon effect, and insulate new structures.

EXHIBIT 21

Calculations for Present and Future Traffic Noise

Definitions:

L = length of traffic group in number of vehicles
ADT = average daily traffic count
k = % of traffic corrected for one minute group (i.e., 60/0.1 for peak hour auto traffic)
N = number of traffic lanes
C = light (traffic) cycle in minutes
R = ratio of green + yellow to C
T_p = peak hour traffic. (e.g., early morning and late afternoon peaks totaling approximately eight hours)
T_{op} = off-peak traffic. (e.g., the high level of traffic after subtracting the morning and afternoon peaks)
T_{tr} = truck traffic. Expressed as a percentage of T_{op}
L_{10} = the tenth percentile of noise level (intensity). e.g. that level of noise not exceeded more than 10% of the time.

The following is determined from the local municipality:

a. project to traffic lane relationships
b. roadway gradients
c. traffic counts (ADT)
d. roadway geometrics
e. traffic control data (stop signs, C, and R)

From the foregoing the traffic model is determined by the following formula:

$$L = (0.7 + 0.3\ (1-R)\ \times \frac{C \times ADT}{k \times N}$$

For T_p: $k = 600$; T_{op}: $k = 1200$; T_{tr}: $K = 30{,}000,\ 20{,}000,\ 12{,}000$ for 4%, 6%, and 10% respectively.

The figures 0.3 and 0.7 represent the determination that traffic on these streets bulks about this ratio without traffic control. It should be noted that the traffic grouping (length of group = L) exceeds the block lengths for some streets. However, the streets where this occurs are controlled by synchronized traffic lights so that the grouping is realistic.

Noise output for unit vehicles is determined as follows:

For auto: $\text{dBA} = 45.8\ V^{0.12}$; for truck: $\text{dBA} = 100\ V-0.054 + 1.8G + 5(?)$
where V = speed in mph; G = % street grade; 5 dBA is added for traffic control for trucks only. dBA at a point determined by summating all unit outputs, modified by a reduction of 6 dBA for each doubling of distance.

3. Air Quality

The air quality impacts of the proposed Project were studied with the assistance of the Environmental Protection Agency and through a contract with URS Research Co. URS supplemented its earlier studies, conducted for the State-required EIR, with a description of its overall methodology, and of the equations, input parameters and diffusion models used to determine pollutant impact. The studies were further supplemented with a comparison of output parameters against Federal and State air quality standards, an estimate of vehicle miles traveled (VMT) as a result of the proposed Project, and an estimate of worst case conditions which could occur if unlimited parking were to be provided in the surrounding area.[147]

In general, the present air quality average values for the air pollution designation throughout the Bay Area is within light air pollution classification.[148] The number of days in which the ambient air quality standard set by federal, state and district law is exceeded in San Francisco is small.[149] However, the meteorological conditions and topography of the City can significantly effect the level of air quality when certain conditions occur simultaneously. Therefore, the air quality in the YBC area was studied under a variety of vehicular and meteorological conditions.[150] All estimates included in this text represent worst meteorological conditions.

Currently, the primary source of air pollution in the YBC area is from vehicles within or passing through the Project area, and from vehicles on the James Lick/Bayshore Freeway (in instances where a southwind blows pollutants northward into the downtown area). The proposed Project will effect the existing air quality in the area in several ways:

- Effect of buildings on wind flow;
- YBC generated traffic;
- Natural gas combustion;
- Exhaust emissions from the parking garages; and
- Construction activities

The effects are discussed below in relation to overall Regional air quality and are summarized in the final section in relation to federal and state air quality standards.

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[147] Refer to Section IV.E.1 - Traffic

[148] There are six BAAPCD Air Quality Category Designation; in order of severity, they range as follows: clean, light, significant, heavy, severe, emergency.

[149] Letter from D. J. Callaghan, Air Pollution Control Officer, Bay Area Air Pollution Control District (BAAPCD), January 22, 1973.

[150] Extensive wind tunnel testing was conducted under simulated conditions by J. F. Cermale, F. H. Chandbry, A.C. Hansen, and J.A. Garrison, Wind and Air Pollution Control Study of Yerba Buena Center, June 1972. Refer to Appendix M, for the Basic Meteorological Parameters.

Effect of Buildings on Wind Flow

The proposed buildings in the Project area will serve to slightly moderate the wind flow, effecting the speed, direction and degree of turbulance. An "urban canyon" effect is likely to be created which can concentrate and channel local air pollutants. This will be offset, to a certain degree, by the slightly increased wind turbulance induced by the interaction of the wind current with the structures. These effects upon the meteorological conditions have been considered in the diffusion estimates included in this text.

YBC - Generated Traffic - Vehicle Miles Traveled (VMT)

As discussed in Section IV.E.1. "Traffic," YBC as currently planned is not projected to increase afternoon peak hour traffic. However, it will prolong daytime off-peak traffic and increase nighttime peak traffic when the Public Facilities are in use.

As a result of the net reduction in available parking spaces in the Project area and the expected shift of many East Bay commuters from private automobiles to BART, a reduction in VMT is expected during the afternoon peak period, following Project completion. Current peak period VMT per hour generated by the area is estimated at approximately 12,700 VMT per peak hour in the early 1980s.[151] This minor positive impact can only be realized if the currently planned parking and street capacities are maintained. Any increases to accommodate additional automobiles would correspondingly increase the number of VMT. If the projected modal traffic split were not contained by these limiting factors, the VMT per hour during peak periods could potentially increase to as high as 80,000 during maximum use of all facilities.[152]

On occasion when all evening facilities (Sports Arena, Convention Center and Theater) are accommodating average flow crowds, the number of evening VMT per hour generated could be as much as 38,000 (6,100 vehicles) if all participants exited at the same hour. If the situation were ever to occur that all three facilities were simultaneously in use to maximum capacity, and all participants exited at the same time, VMT could reach

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[151] Refer to Tables I and IV in Section IV.E.1 for the model splits used; and to Appendix M2 for the breakdown of VMT.

[152] Refer to Appendix M2. This represents the maximum in accordance with the projected model split, but would require an increase of approximately 17,000 parking spaces. This does not appear likely to occur in light of current City policy. This situation would also only exist on rare occasions when the convention center, hotel and employment are at full capacity.

TABLE I

1982 Projected Annual Pollutant Increase from YBC-Generated VMT*
(tons/year)

	CO	HC	NO_x	Part.	SO_x
YBC VMT	550	44	26	4	7
Air Basin** Total	730,000	350,000	200,000	84,000	300,000
%	0.08%	0.01%	0.01%	0.005%	0.002%

* Based upon 1982 emission factors, at worst case condition of 20 mph (stop and go) traffic.

** County air basin total, estimate for 1982 - BAAPCD, 1972 Source Inventory of Air Pollutant Emissions. The percentage of the total SF City and County emissions are approximately as follows: CO - 0.5%; HC - 0.01%; NO_x - 0.01%; Particulates - 0.005%; and SO_x - 0.002%.

100,000 per hour (38,000 vehicles) during the evening surge period.[153] These estimates represent a net increase in VMT generated by the Project area during this period.[154]

The proposed Project will also increase the average hourly VMT during the off-peak hours by approximately 16,000 (2,000 vehicles) during average conditions, and 37,000 (5,300 vehicles) during maximum use of the facilities, if the turn-over of parking spaces is rapid enough to accommodate this number of cars.

The preceding table summarizes the limited effect of these increased VMT for the air quality Region, based upon an estimated Regional increase of approximately 13,000 vehicles traveling an average of 7.8 miles per day in relation to YBC.[155]

Natural Gas Combustion

As discussed in Section IV, B, 5, "Utilities," the proposed Project is estimated to consume approximately 409.6 million cubic feet (MMcf) of natural gas per year. This will be equal to approximately 46,500 cubic feet/hour during average hours and approximately 543,000 cubic feet/hour during peak hours. Applying emission rates in grams per second, the concentration of hourly emissions from natural gas consumption during worst meteorological conditions are estimated as follows:[156]

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[153] Refer to Appendix M_2. The permutation of factors which would result in the latter situation are not possible to predict. It is unlikely that this number of cars could be accommodated by available parking facilities.

[154] It is unlikely that the Regional VMT would be significantly increased. It is anticipated that a larger portion of the YBC activity (particularly in the Sports Arena) will be drawn from existing Regional facilities, and that many persons will have a smaller distance to travel in reaching the YBC destination. (Refer to Section IV.F. "Economics and Financing.")

[155] This represents only the increase in traffic created by YBC. The sports arena traffic is not included here, since it is not expected to represent a regional increase.

[156] URS Research Company, Draft EIR, pg. V-I-28, Tables I-19 through I-21. Refer to Appendix M_3 for the methodology and input parameters employed.

TABLE II

Natural Gas Emission Concentrations at Central Plaza Location

	CO (ppm)	HC (ppm)	NO_x (ppm)	Part. (vglm^3)	SO_x (ppm)
Avg. Hour	0.003	0.001	0.01	2.6	0.04
Peak Hour	0.68	0.48	0.20	100.0	8.8

These emissions constitute a minor portion of the air quality region pollutants.

TABLE III

1982 Projected Annual Natural Gas Emissions (tons/year)

	CO	HC	NO_x	Part.	SO_x
YBC Natural Gas	4	1.6	15	4	0.12
Air Basin Total*	730,000	350,000	260,000	84,000	300,000
%	0.0005%	0.0004%	0.0006%	0.005%	0.00004%

*The percentages of the total S.F. City and County emissions are approximately as follows: CO - 0.0036%; HC - 0.0024%; NO_x - 0.079%; Particulates - 0.057%; SO_x - 0.0001%.

Exhaust Emissions from the Garages

Pollutants will be emitted in the area of the Central Plaza through the stacks from the underground parking garages. Although the Apparel Mart garage has not yet been designed, for purposes of these analyses, it is assumed here that the eventual ventilation characteristics will be similar to those of the proposed public parking garage.

The procedures and dispersion estimates for determining emissions were developed in the wind tunnel study - undertaken by Cermak .[157] The source strengths are based upon the following parameters:

- fresh air capacity: range of 6 to 22 air changes per hour
- traffic: afternoon peak (1600 cars/hour)
  evening peak (max. of 2400 cars/hour)
  normal average (150 cars/hour)
- average travel in garage: 600 ft. per car
- speed in garage: 10 mph
- emission factors employed (grams/mile, 1982)

CO	HC	NO_x	Part	SO_x
27	1.7	0.65	0.1	0.18

Garage emissions under southwind conditions are estimated as follows:

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[157] *Op. cit.*, C.E. Cermak

TABLE IV

Garage Emissions
Resulting Concentrations at Central Plaza

	CO (ppm)	HC (ppm)	NO_x (ppm)	Part. (vglm^3)	SO_x (ppb)
Avg. Hour	0.0	0.00	0.00	0.04	0.02
Peak Hour	2.6	0.14	0.02	5.6	2.7

Again, these constitute a minor percentage of the overall Regional pollutants.

TABLE V

1982 Projected Annual Garage Emissions
(tons/year)

	CO	HC	NO_x	Part.	SO_x
YBC	4.5	0.28	0.11	0.02	0.03
Air Basin TOTAL	730,000	350,000	260,000	84,000	300,000
%*	0.0006%	0.00008%	0.00004%	0.00002%	0.00001%

* The percentages of the total SF City and County emissions are approximately as follows: CO - 0.004%; HC - 0.0004%; NO_x - 0.0005%; Part. - 0.0002%; SO_x - 0.00004%.

Summary of Long-Term Air Quality Impacts

The following table summarizes the total long-term increase in pollutant emissions expected to be generated by the proposed YBC facilities:

TABLE VI

Summary of Long-Term Regional Impacts (tons/year for 1982)

	CO	HC	NO_x	Part.	SO_x
VMT	550	44	26	4	7
Natural Gas	6	2.4	30	5.6	0.39
Garage	4.5	.28	.11	.02	.03
TOTALS	560	47	56	9.6	7.4
Air Basin Totals	730,000	350,000	260,000	84,000	300,000
%	0.08%	0.01%	0.02%	0.01%	0.002%

* The percentage of the total SF City and County emissions are approximately as follows: CO - 0.51%; HC - 0.07%; NO_x - 0.29%; Part. - 0.14%; and SO_x - 0.009%

The increase in air pollutants created by the proposed YBC Project are projected to be small when compared to Regional emissions. The largest contributors to the increase in pollutants will be the additional daytime off-peak and evening traffic created by the convention center, theater, apparel mart and retail stores. The peak hour commuter traffic is expected to remain relatively stable, and, thus, is not expected to increase the emission of air pollutants. There is likely to be a slight decrease in peak hour emissions due to the reduction in available low-cost all-day parking spaces.

Natural gas emissions will contribute mainly to the level of nitrous oxides and particulates in the air. Although the parking garages do not directly contribute a substantial amount of pollutants, they can be considered an indirect source in that they provide accommodations for vehicles in the area. If the number of parking spaces were increased or reduced, it can be expected that the VMT, and resultant vehicular pollutants, would be correspondingly increased or reduced.

Tables VII and VIII present the projected maximum air pollutant concentrations in the YBC central plaza area from all sources in 1982, as compared to Federal and State hourly emission standards. The central plaza area will experience the maximum air quality impact from YBC, due to the proximity of the garage stacks. These projections are based upon worst case meteorological and peak traffic conditions for the Project as currently planned. These conditions include a southwind of one metre per second velocity, a stable atmosphere, and peak traffic.

It is anticipated that this combination of conditions would only occur two or three times per year, and represents the maximum potential pollutant emissions.

The ambient concentrations include freeway contributions, and Bay Area Air Pollution Control District trend predictions.[158] The YBC vehicular contributions include those emissions generated by the parking garage, and by all vehicles specifically generated by the proposed Project. The natural gas emissions are those attributable to the YBC project.

It is seen that several standards may be exceeded. These include:

- Calif. one hour NO_2 standard
- Federal primary & secondary 3 hour HC standard
- Calif. and Fed. primary & secondary 24 hour particulate standards

Due to consersative estimates, it was assumed that all the NO_x was NO_2 and all the HC was reactive. Therefore, these represent a worst case situation. The natural gas emissions were assumed to be untreated, and therefore are responsible for potentially large particulate concentrations. If these emissions are properly treated, they could be reduced by as much as 90%. The maximum plaza 24 hour particulate concentration would then be about 80 $vglm^3$ which is below the standards. Therefore, these standards as listed above may be considered as maximum possible conditions and related potential problems. The frequency of these conditions occurring is considered slight.

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[158] Refer to Appendix M_5 for an explanation of the equations, diffusion models and input parameters employed.

TABLE VII

1982 Air Pollutant Concentrations
(Southwind 1 hr/sec)

	CO (ppm)	HC (ppm)	NO$_x$ (ppm)	Part. (vglm^3)	SO$_x$ (ppb)
Nat. Gas (1hr peak)	.7	.5	.2	100	8.8
YBC Vehicular Contribution					
1 hr. (peak)	4.6	.24	.04	9.8	4.8
3 hr. "	3.2	.17	.03	6.9	3.4
8 hr. "	1.7	.09	.01	3.7	1.9
12 hr. "	1.4	.07	.01	3.0	1.5
24 hr. "	.9	.04	.008	1.9	.9
Ambient Quality					
1 hr. (peak)	8	1	.2	95	30
3 hr. "	6	.7	.15	85	22
8 hr. "	3	.4	.08	80	12
12 hr. "	3	.3	.07	75	10
24 hr. "	2	.2	.04	70	7

* Concentration at Central Plaza, which represents the peak condition due to garage exhaust emissions, Projected to 1982.

The following table compiles this information and compares the resulting concentrations with applicable standards:

TABLE VIII

Comparison of Ambient Air Quality Standards with Maximum Expected Concentrations

	CO (ppm)	HC (ppm)	NO$_x$ (ppm)	Part. (vglm^3)	SO$_x$ (ppb)
One Hour					
Concentration	13	1.7	0.44	205	44
State	40		.25**		500***
Fed. Prim.+	35				
Fed. Sec.++	35				
Three Hour					
Concentration	9.9	1.4	.38	190	34
State					
Fed. Prim.		.24*			
Fed. Sec.		.24*			
Eight Hour					
Concentration	5.7	0.91	0.29	183.7	22.7
State					
Fed. Prim.	9				
Fed. Sec.	9				
Twelve Hour					
Concentration	5.1	0.89	0.28	178	20.3
State	12				
Fed. Prim.					
Fed. Sec.					
Twenty-four Hour					
Concentration	3.6	0.74	0.25	171.9	16.7
State				100	40***
Fed. Prim.				260	30***
Fed. Sec.				150	30***

* Standard written for reactive (non-urethane) hydrocarbons, while estimate is for total hydrocarbons. To be conservative, assure THC=RC to define problem potential.

** Standard written for NO$_2$ only, while estimate is for NO$_x$, again assume NO$_x$=NO$_2$ to be conservative.

*** Standard written for SO$_2$, while estimate is for SO$_x$, if SO$_x$=SO$_2$, a worst case, the standards would still not be exceeded.

+ Federal Primary Standards are defined as levels which are "necessary with adequate margin of safety to protect the public health."

++ Federal Secondary Standards are defined as levels which are "necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant."

Construction Activities

Construction activities, and most particularly the excavation stage, will have major short-term negative impacts on the air quality in the area. Particulate content of the air will be substantially increased as a result of the movement and hauling of dirt and rubble. This excavation phase will consist of the movement of approximately one million cubic yards of earth over approximately a four month period in the Central Blocks area, and another million cubic yards in the Peripheral areas, dispersed over several years.

Gaseous emissions will also be increased due to asphalt paving and emissions from construction vehicles. Pollutant emissions during the excavation phase are estimated as follows: [159]

TABLE IX

Average Pollutant Emissions During Excavation
(lbs/hour)

CO	HC	NO_x	Part.	SO_x
22.5	3.7	37.0	1,800*	2.7

* Includes dust particulate emissions due to earthmoving.

When added to the ambient air quality, the gaseous emissions are not, however, expected to exceed air quality standards. The particulate level is expected to exceed the 24-hour State standards during the excavation phase of the Central blocks.

The expected particulate problems are common for construction projects of this size, and should not be considered unique to this project. They may be substantially reduced by careful construction practice to eliminate nuisance conditions, but the 24-hour standard is still expected to be exceeded locally during the construction activities.

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[159] Refer to Appendix M_4 for a discussion of the equation and diffusion models employed; source: URS Research Co., Draft EIR, pg. V-I-8, Tables I-2 and I-3.

F. Economics and Financing

Subsequent to the preparation of the Project area under the Urban Renewal Program (e.g., relocation, clearance, site improvements, etc.), the Project land will be sold to developers at fair market value. As planned, a portion of the Central Blocks area - including the Convention Complex, Public Parking Garage, Sports Arena, and pedestrian mall, and the Central Heating and Cooling Plant in the Peripheral Blocks - is to be developed by the City and County of San Francisco. The remainder of the Central Blocks area will be completed by a private developer. The financing of Public Facilities and the land in the Central Blocks area is to be provided through an agreement between the City and the Redevelopment Agency which provides for the following elements:

- The Redevelopment Agency will issue lease revenue bonds in an amount sufficient to pay for the construction of the facilities and other development costs, including land.

- The bonds will be sold at public sale to the bidder offering to purchase the bonds at the lowest net interest cost to the Agency.

- From the proceeds of the bond sale, the Agency will reimburse the Federal Government for the reuse value of the land and the City will administer the solicitation of bids, the award of construction contracts, and the supervision of construction of the public facilities. In addition, arrangements will be made to pay other development costs from the proceeds of the bond issue.

- Utilizing a Project Lease, the Agency will lease the public sites and completed public facilities to the City at a rent sufficient to amortize the bonds and cover any additional expenses which may be incurred by the Agency.

- Using the Master Private Lease, the Agency intends to lease the private sites to the designated private developer and will make the proceeds available to the City.

- When the Agency bonds are paid off, title to the public sites and the public facilities will vest in the City.[160]

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[160] Yerba Buena Public Facilities, submitted by Thomas Mellon, Chief Administrative Officer, to the Board of Supervisors, March 6, 1972. (Hereafter called the "Blue Book")

Development on the peripheral parcels will be financed by private developers, with the exception of the proposed housing, which is proposed to be financed through hotel tax revenues and Redevelopment Agency bonds.

The following aspects of the Project are considered in an effort to determine the net economic costs and benefits:

- Public Construction and Development Costs; the amount of City funds required to develop the proposed public facilities and low-income housing;
- Direct Revenues of the Completed Project; available to amortize the public bonds; and
- Economic Impact of the Project on the City; the direct and indirect costs and benefits of the completed Project.

The estimates contained here are extremely conservative and fall far below those derived in any other economic analysis of the YBC Project. Aggressive marketing of the Sports Arena and Convention Center could generate substantial revenues beyond what is projected here. This analysis should be viewed as projecting the minimum amount of revenue to be expected from the YBC project.

1. Public Construction and Development Costs

The estimated cost of the Public Facilities as contained in the presentation by the City's Chief Administrative Officer to the Board of Supervisors on March 6, 1972 (hereafter called the "Blue Book") was $141,965,000 for construction and $39,929,000 for other development costs. However, this estimate was based upon a construction starting date of February 15, 1973.[161] Since the sale of bonds for the Public Facilities is currently planned for the spring of 1974, it is unlikely that construction will actually begin prior to

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[161] Op. cit. Yerba Buena Center Public Facilities.

TABLE I
PUBLIC FACILITIES COSTS
(in millions of dollars)

Construction Costs*	1/73** (Start Date)	Inflation*** Factor Per Yr.	7/74 (Start Date)	Comments
Utility Relocation	$ 5.569	None	$ 3.900	Most major utility work is complete and actual costs have been substantially lower than estimates.
Exhibit Hall and Meeting Room Complex	63.596	8.4%	71.833	
Sports Arena	37.908	8.4%	42.818	
Parking Garage	21.429	8.4%	24.205	
Central Concourse	11.046	8.4%	12.477	
Central Heating and Cooling Plant	2.417	8.4%	2.730	
Sub-Total	$141.965		$157.963	
Other Development Costs				
Land	$14.000	None	$14.000	Land disposition price has been concurred in by HUD
Works of Art	1.000	None	1.000	The art budget will not be increased
Purchase of Prevous Studies (completed)	.516	None	.516	Completed activity
Architecture and Engineering	11.169	None	12.040	Stipulated in contract that fees are limited to originally projected amount.
Construction Inspection and Testing	2.800	--	2.800	Graduated percentage of total construction costs
Financing and Legal Consultation	0.600	None	.600	Stipulated in contract that fees are limited to originally projected amount.
Construction Contingency	7.098	--	8.155	5% of construction costs
Administration	0.660	None	.660	Have not hired projected number of staff
Insurance	0.404	--	.481	Revised estimate by Blyth & Co.
Construction Consultant	1.682	--	1.323	Revised estimate by consultant
Sub-Total	$39.929		$41.575	
Total Costs	$181.894		$199.538	

* Includes furnishings and equipment

** Source: Blue Book (Funded Interest is discussed in a subsequent Table)

*** Compounded annually over 18 months; a contingent inflation factor was included in the City's original cost estimates, providing for an average addition of 20% of the total construction cost base; this should not change as a result of the delay.

the third quarter of 1974.[162] Therefore, an inflation rate of 8.4%[163] is applied to the construction costs over an 18 month period to project the cost of construction beginning after July 1974. Each of the other development costs have been assessed individually as shown on Table I. The construction costs are merely estimates and can vary upward or downward once actual construction bids are received. Therefore, they should be regarded as approximate figures only.

The size of the bond issue required will equal the cost of the Public Facilities, less accumulated hotel tax receipts which are to be used to assist in the financing of YBC; less the investment income earned during construction;[164] and plus the funded interest required to cover interest payments until such time as Project revenues are available to cover the cost of interest.

The total bond issue will be determined by the prevailing coupon and market interest rates at the time of bond issuance, and can vary substantially as shown on Table II. Computations of funded interest and investment income are explained in Table III.

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[162] Since the time of the preparation of this analysis, there have been indications that start of construction may be delayed for an additional quarter. If this occurs, all environmental and economic impacts would need to be projected forward accordingly. Construction and other development costs would then escalate to approximately $162,700,000 and 42,100,000 respectively.

[163] This inflation rate is based upon an average of rates printed in the Engineering News Records and Turner Construction News, projected wage rates and material costs. It is not possible to predict with precision what the actual rate will be at the time of construction; thus, these figures should be considered as a rough estimate only.

[164] This income is based upon a scheduled rate of disbursement; funds that are not being expended for construction costs will be invested to gain income to cover later construction costs.

TABLE II

Bond Issue Size - Public Facilities
($000)

	5%	5½%	6%	6½%	7%
Sub-total costs	$199,555	$199,555	$199,555	$199,555	$199,555
Less:					
Hotel Tax Receipts*	17,422	17,422	17,422	17,422	17,422
Investment Income**	16,305	18,844	21,064	23,648	26,385
Sub-total	165,828	163,289	161,069	158,485	155,748
Plus:					
Funded Interest**	40,457	45,015	49,784	54,602	59,609
Total Bond Issue Size	$206,285	$208,304	$210,853	$213,087	$215,267
Annual Amortization	$ 13,053	$ 13,915	$ 14,670	$ 15,735	$ 17,021

* Receipts in the amount of $10,152,000 will be available by the time the first bond issue is sold. An additional amount of approximately $7,300,000 will be available by early 1978 to be applied against the second bond issue.

** Computed upon the estimated rate of dispersal of funds in accordance with planned contract groupings, and bond issuances.

TABLE III
ALLOCATION OF TOTAL COSTS
TO BOND ISSUES
BY CONTRACT GROUP

Item	First Issue (000)		Second Issue (000)	
Construction Cost Estimate*				
Contract Group I **	3,900			
Group II	35,573			
Group III	68,246			
Group IV	2,856			
Group V			39,995	
Group VI (73%)(27%)	6,025		2,229	
Construction Cost Total		116,000		42,224
Other Costs				
Land	14,000			
Art	1,000			
Previous Studies	516			
Insurance	481			
Construction Inspection & Testing	2,055		745	
Financing & Legal	417		183	
Administration	458		202	
Construction Consultant	919		404	
Construction Contingency	5,800		2,111	
Architectural & Engineering	7,968		4,072	
Total Other Costs		33,614		7,717
Total Costs		149,614		49,941

* Estimate Adjusted Forward to July 1, 1974

** Contract Groups Differ in detail from estimates of Cost of each element of the project.

	5%		5.5%		6.0%		6.5%		7.0%	
	Bond Issue #1	Bond Issue #2	Bond Issue #1	Bond Issue #2	Bond Issue #1	Bond Issue #2	Bond Issue #1	Bond Issue #2	Bond Issue #1	Bond Issue #2
Costs	149,614	49,941	149,941	49,941	149,941	49,941	149,941	49,941	149,941	49,941
less Hotel Tax to										
7/74	10,152		10,152		10,152		10,152		10,152	
10/74-2/78		7,270		7,270		7,270		7,270		7,270
Investment Income @ 0.5% less than Bond rate		12,775		14,419		15,614		17,033		18,453
Investment Income on undisbursed Funded Interest		3,530		4,425		5,450		6,615		7,932
Total Cost	139,462	26,366	139,462	23,827	139,462	21,607	139,462	19,023	139,462	16,286
Funded Interest	34,865	5,592	39,335	5,680	44,040	5,744	49,000	5,602	54,235	5,284
Bond Issue	174,327	31,958	178,797	29,507	183,502	27,351	188,462	24,625	193,697	21,570
Amortization	11,031	2,022	11,966	1,949	13,029	1,641	14,134	1,601	15,316	1,705

The bonds are to be sold in two phases in approximately June 1974 and July 1976, respectively. Amortization payments will begin on the first sale in July 1978 and on the second, in January 1980. All payments will be on a level basis over a thirty-two year period, with those payments in 1978, 1979, and in the final two years of amortization being slightly less due to the overlap of the bond sales.

The bond issue currently authorized by the Board of Supervisors is $225,000,000 at a maximum interest rate of 7%.

The housing projects resulting from the TOOR settlement are proposed to be financed by Redevelopment Agency bonds in an amount equal to approximately 8.3% of the hotel tax revenues, plus $100,000 annually from the Publicity and Advertising fund of the Convention and Visitors Bureau, over the life of the bonds. Total construction costs will be limited to the amount of funds available. Therefore, there is not expected to be any financing demands upon the City's general fund for these housing projects.

2. Direct Revenues of the Completed Project

Included here are the direct revenues available to amortize the bond issue on an annual basis. Other indirect costs and benefits, such as employment and increased sales tax revenues, are discussed in the following section. The direct revenues include:

- Rental income from the private leases in the Central Blocks area.
- Property tax increments from the private development in the peripheral area.
- Net revenues from the Public Facilities.
- Hotel tax allocation.

The analysis of the direct revenues is not to be considered as an analysis of the economic impact upon the City, but merely a computation of the funds available to directly amortize the Public Facility bonds.

a. Rental Income from Private Leases

The ground lease agreement with the private developer in the Central Blocks area provides for a graduated rent schedule as follows:

Table IV

Rental Income from Private Leases

	Site Rents	Keil-Field Properties	Retail	Total
FY 1974*	$25,800	$ 71,700	$ 1,000	98,500
1975	91,800	71,700	1,000	164,500
1976	123,600	71,700	1,000	196,300
1977	156,500	71,700	30,100	258,300
1978	189,500	71,700	37,100	298,300
1979	244,600	71,700	44,100	360,400
1980	297,000	71,700	51,100	419,800
1981	348,600	71,700	58,100	478,400
1982	348,600	71,700	65,100	485,400

*On a fiscal year basis of July-June

Maximum rental will be reached in 1982, and continue annually thereafter. These funds have been allocated by the Board of Supervisors to assist in the annual amortization of the Public Facilities bonds.

b. Tax Increments from Peripheral Parcels

The Board of Supervisors has also authorized the use of property tax increments from the Project land to be used toward the amortization of the bonds. The increments are equal to the property tax on the difference between the 1965 assessed land valuation and the assessed land valuation in 1974 and thereafter. Since redevelopment is expected to significantly increase land values in the area, it is currently estimated that annual tax increments will be generated as in Table V.

c. Net Revenues of the Public Facilities

Numerous estimates have been made on the volume of activity projected for the Public Facilities in the Central Blocks area. These estimates have varied radically, due to the dearth of hard data available to substantiate these projections, and due also to the wide variety of assumptions which can be made.

To accurately project the actual activity in these facilities, it would be necessary to conduct an in-depth national study on the influences which effect convention and sports arena business, to establish trends for each of these influences, and then to apply these factors to San Francisco's proposed facilities. Such factors as the state of the economy; the relative desirability of San Francisco as a convention or sports center; the trends in air and automobile travel as a result of limited energy resources; and the trend on the part of conventioneers nation-wide for more or less, larger or smaller conventions, all could potentially effect future convention business in San Francisco.

Adequate research in this area is not available, and it is beyond the scope of this Statement to conduct such a study. Therefore, projections included here are based primarily upon the record of past and current convention activity in San Francisco, and a balancing of available economic analyses of the Project. The projections should be considered rough indicators rather than firm predictions.

Table V

Annual Tax Increments * (in thousands)

	Increase in Valuation	Cumulative Total	Increase in Tax***	Cumulative Total
FY 1977**	7,053	7,053	222	222
1978	35,592	42,645	1,120	1,342
1979	60,323	102,968	1,898	3,240
1980	70,955	172,923	2,233	5,473
1981	38,453	212,376	1,210	6,683
1982	5,321	217,697	167	6,850
1983	46,815	264,572	1,475	8,325
1984	62,175	326,747	1,956	10,281
1985	-	326,747	-	10,281
1986	39,984	366,731	1,258	11,539
1987	-	366,731	1,258	11,539
1988	-	366,731	1,258	11,539
1989	-	366,731	1,258	11,539
1990	-	336,731	1,258	11,539

* Original valuations of $9,318,000 and tax of $293,000 are ducted from total. Computations are of a fiscal year basis of July-June.

** Represents improvements on listing parcels from Blue Book Exhibit VI

*** Assured tax rate of 12.59 per $100 assessed valuation

1. Convention Center

With respect to estimated overall business activity in the City, the Convention Center seems to be the most important of the Public Facilities. Its activities in terms of derived revenue are expected to replace those of the manufacturing industries lost over the past few decades.

The manufacturing function in a city or region can be regarded as an export industry since the products are generally sold outside the region and thus bring income from other areas. Conversely, service industries are population serving industries, or those industries which service the regional needs in distribution and marketing.[165]

San Francisco has been steadily losing export industries over the last twenty years. It has 66,000 employed in the manufacturing section in 1958; by 1972 employment in this sector had declined to 50,800 while total civilian employment in the City had grown from 466,600 to 519,000.[166] To maintain its economic vitality, San Francisco needs economic activities that draw income from outside the Bay Area and the City. Successful convention activity fulfills this function.

In projecting future convention business in San Francisco, two main factors are considered:

- New convention business which would be uniquely generated by a Center of the size and design of YBC, and which would not otherwise come to San Francisco; and
- Projected overall growth of convention business which would require additional facilities beyond that already available in San Francisco.

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[165] Bay Area Transportation Study Commission, EMPRO: BATSC Employment Projections San Francisco Bay Area: Nine Counties 1965-1990, BATSC Technical Report 218, (Berkeley: BATSC, April 1968), p. 15.

[166] California Department of Human Resources Development, Area Manpower Review San Francisco-Oakland SMSA Outlook and Planning Report, April 1973, pp. 76-77.

Business Unique to YBC

Business which would be generated only if YBC were constructed would be primarily dependent upon the increased size or improved facilities which are not currently available in other San Francisco facilities.

In terms of size, there are four cities nationally with greater square footage of exhibit space than YBC, and six others with facilities approaching its size. The record of past bookings for these centers shows that the major users appear to have been industrial shows and local large-scale consumer shows.

The YBC facility is not likely to attract large industrial-oriented shows other than those currently using existing facilities. These exhibits most frequently represent a regional base and are unlikely to travel great distances for exhibit shows, due to the considerable expense of drayage across county.[167]

Large-scale consumer shows are those such as the National Sport and Boat Show which has traditionally been held at the State-owned and operated Cow Palace in Daly City.[168] The Cow Palace has 320,000 square feet of exhibit space and, thus, in comparison with YBC's proposed 340,000 square feet, appears adequate in size to handle shows of this type. However, this facility is generally regarded as obsolete, and it is likely that future consumer shows will be attracted to the modern facilities and more convenient location of the YBC convention complex. Although this would create a shift of revenue from State to City coffers, it is not likely to create a new or unique clientele of conventioneers.

Thus, with no sound basis for projecting an increase in conventions of these types, it would appear that the only unique clientele attributable to YBC must be represented by those groups who have specifically expressed an interest in YBC exclusively. The records of the San Francisco Convention and Visitors Bureau list several organizations which have tentatively scheduled conventions in 1977 through 1980, but which have indicated that they will cancel if the YBC facility is not completed in time. These organizations represent an annual average of approximately five conventions, approximately 9,500 convention delegates per convention, or an average annual total of 47,500 delegates. This, then, is the estimate used as YBC's projected unique clientele. It is held constant over all years of activity, since there is insufficient data available to predict a growth rate in this category of conventions.

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[167] Madison Square Garden Corp. (MSG), Report on Yerba Buena Center Proposed Sports and Entertainment Arena and Exhibit Hall, February 19, 1970, pg. 10 also: Economic Reserach Associates (ERA), Economic Performance of Public Facilities in Yerba Buena Center, pg. III.4.

[168] Op. cit. ERA Report, p. III.8.

Growth Trend of Convention Business

In addition to the State-owned Cow Palace discussed above, San Francisco currently has 167,000 square feet of exhibit space in the Brooks Hall structure in Civic Center which has served national conventions in the past.

The record of convention delegates to San Francisco between 1960 and 1972 (Refer to Table VI) indicates an extreme randomness both in the number of conventions in the City and the number of delegates registering for those conventions. The low point was 1960 with 294,372 delegates, and the two high points were 1968 with 527,528 delegates and 1972 with 597,700.

The growth pattern between 1960 and 1965 was fairly rapid, with a compounded rate of increase in the number of delegates of 7.16% per year. From 1967 to 1972, the growth pattern was fairly erratic, with a compounded growth of only 2.71%.

The lack of uniformity in the historical rate of convention growth over the past thirteen years makes it very difficult to use this as a valid indicator of future convention growth. In an effort to minimize the fluctuations about the genuine trend line, a least squares trend line was run through the data from 1960 to 1972. From this line, a compound growth rate in the number of delegation of 3.337% was established. Using this compounded growth rate, an average number of delegates is projected forward over the next two decades, as shown on Table VII.

As indicated by the past record of convention activity in San Francisco, it is highly unlikely that the number of delegates will grow in as orderly a fashion as depicted on Table VII. There are likely to be wide variations of as

Table VI

ACTUAL AND ESTIMATED NUMBER OF CONVENTIONS AND DELEGATION SIZE

1960-1985

	Conventions		Delegates		
Year	Number	Annual Percentage Increase	Number	Annual Percentage Increase	Average Size of Convention
1960	397	---	294,372	--	741
1961	438	10.3%	367,258	24.7%	838
1962	450	2.7%	385,000	4.8	855
1963	530	17.7	498,000	29.3	939
1964	553	4.3	428,723	14.0	775
1965	601	8.6	411,045	4.2	683
1966	688	14.4	509,045	23.8	739
1967	684	(0.6)	514,876	1.1	752
1968	740	8.1	527,528	2.4	712
1969	675	(9.6)	463,000	(13.9)	685
1970	646	(4.2)	488,884	6.0	755
1975	950	6.0	684,000	6.4	720
1980	1,250	5.5	987,500	7.6	790
1985	1,550	5.5	1,317,500	5.9	850
Increase, 1970-1985	904		828,616		
Percent Increase, 1970-1985	140%		170%		
Average Annual Compounded Increase, 1970-1985	6.0%		6.8%		

Sources: 1960-1970, San Francisco Convention and Visitors Bureau
1975-1985, Development Research Associates
And Development Research Associates Transient Housing Study

TABLE VII

Projected Average Delegate Growth

Year	Ave. Delegate Growth*	Ave. Delegates Requiring Space Outside Hotels	Ave. Conventions Requiring Space Outside Hotels**	Ave. Use - Days for Conventions***
1973	571,890	171,567	16.3	130.7
1974	590,974	177,292	16.9	135.1
1975	610,695	183,209	17.4	136.6
1976	631,074	189,322	18.0	144.2
1977	652,133	195,640	18.6	149.1
1978	673,895	202,169	19.3	154.0
1979	696,383	208,915	19.9	159.2
1980	719,621	215,886	20.6	164.5
1981	743,635	223,091	21.2	170.0
1982	768,450	230,535	22.0	175.6
1983	794,093	238,228	22.7	181.5
1984	820,592	246,178	23.4	187.6
1985	874,975	254,392	24.2	193.8
1986	876,272	262,882	25.0	200.3
1987	905,513	271,654	25.9	207.0
1988	935,730	286,719	26.7	213.9
1989	966,955	290,087	27.6	221.0
1990	999,222	299,767	28.5	228.4

*Note: In any one year the actual number may vary much as 75,000 - 100,000 delegates. These figures do not include local public shows and exhibits.

**10,500 per convention; conventions using exhbit space generally have larger delegations than those using hotel space.

***Eight days per convention.

much as 75,000-100,000 delegates from year to year. For example, if an average growth or predicted path is drawn through the 1960's, the convention size in 1963 would exceed this trend line by as much as 88,402 delegates, while 1971 would fall 74,786 delegates short. Due to these significant fluctuations, Table VII should be regarded as merely an averaging of growth over time. In order to be assured that total convention demand can be consistently met, it would be necessary to adjust the predicted path upward by approximately 100,000 delegates to adjust for peak load years.

Not all of the convention delegates projected on Table VII will require exhibit hall space. Historically, those conventions needing convention space outside of their hotels have amounted to approximately 2% of the total conventions, but 30% of the total convention delegates. These percentages are applied to the projected number of delegates on Table VII, in order to estimate the amount of convention hall space which is likely to be required over the next two decades.

A certain portion of this required space can be accommodated by the existing facilities. The 1968-69 schedule of events in Civic Auditorium/Brooks Hall had the largest number of use-days in the center's history, totalling 180. Since the standard convention year is approximately 244 days from October through May, this required the hall to be in use three-fourths of the time. Even with very tight scheduling, it is difficult to expect that the complex could accommodate many, if any, more use-days than this.

Using the annual growth rate of conventions and convention delegates on Table VI as a very rough indicator, it can be projected that Brooks Hall capacity will not be consistently exceeded until approximately 1982 or 1983. However, as indicated by the experience of 1968, Brooks Hall will reach full capacity during any year which is subject to a significant upward fluctuation in the number of delegates. Therefore, additional convention and exhibit space could be needed in any year, but probably not on a consistent basis until the early 1980's.

The estimated capacity of the YBC Center is approximately 240 use-days during the typical convention year of May through October.[169] Thus, the combined convention capacity of the Brooks Hall and YBC facilities are not likely to be exceeded on a consistent basis until some time after 1990.

On the premise that YBC will be a more attractive and prestigious center, it is expected that Brooks Hall will bear the greatest portion of the underutilization. This is significant in determining the amount of direct revenues available to amortize the bonds, although it has a balancing effect for the overall City economy.[170]

Based upon the current bookings for future San Francisco conventions, it is expected that, upon completion of the YBC facility, Brooks Hall will retain approximately 40% of the conventions, attributable to average growth, until reaching full capacity. The remaining conventions, plus those unique to YBC, and the trade and consumer shows are expected to go to YBC. Based upon this estimate, it is possible, using Table VII and the predicted unique clientele to roughly project the total use-days, delegates and, therefore, direct revenues accruing to the YBC convention center.[171]

Project Revenues

Table VIII projects the total YBC use-days for both conventions and public exhibits. These direct revenues include (1) net operating revenue, (2) facilities use tax, and (3) possessory interest tax paid by the concessionaires.

- Net Operating Revenues

  The distribution of use-days is established on the basis of one-half open days and one-half set-up days. The use-days are estimated at one-third full hall and two-thirds half hall. Rents are estimated at $6,000 for full hall and $3,000 for half hall. Set-up rates are one-half the open rates.

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[169] Op. cit., ADL, EIR, Table A-46, V-A-86.

[170] The effect of "marginal delegates" on the City's overall economy is discussed below.

[171] The economic loss to Brooks Hall is computed in the following section to determine the overall economic impact upon the City.

TABLE VIII

Allocation of Convention Center Usage
In San Francisco 1976-1986

	Estimated National Conventions (Average)	Use* Days	YBC Use Days	YBC Unique Usage	Public Shows Use-Days	Total YBC Use Days
1978	19.3	154	92	40	76	208
1979	19.9	159	95	40	76	211
1980	20.6	165	99	40	76	215
1981	21.2	170	102	40	76	218
1982	22.0	176	105	40	76	221
1983	22.7	182	109	40	76	225
1984	23.4	188	113	40	76	229
1985	24.2	194	116	40	76	232
1986	25.0	200	120	40	76	236
1987	25.9	207	124	40	76	240
1988	26.7	214	128	40	76	244
1989	27.6	221	133	40	76	249
1990	28.5	228	137	40	76	253

* Estimated at eight use days per convention.

** Estimates based upon ERA Report Table 13 III-30. These include local public shows which are often held during the off-season and do not significantly add to San Francisco's national delegate total.

In Table IX, rental rates have been held constant since it is not possible to predict at this time what YBC's competitive position will be nationally and thus to what extent rents could be raised. However, costs of operating the facility are escalated at approximately 4% per year. On this basis, as shown on Table VIII, net revenues would actually decline over subsequent years. Although, an increase in rental rates is highly likely at intervals over the next two decades, the City may choose to keep rates extremely low to the point of suffering an operating loss on the facility, in exchange for a highly favorable competitive position for attracting national delegates.

- Possessory Interest Tax

Possessory interest tax will be charged on approximately 1310 restaurant and bar seats in the Convention Center. The tax is based upon the capitalized value of the rental of each contract life of approximately two and one-half years. The capitalized value is based upon concession sales of approximately $.75 per delegate per day in 1970 dollars, assessed at the standard 25% ratio and taxed at 12.59 per one-hundred assessed value. Estimated income from possessory interest tax is projected on Table X.

- Facilities Use Tax

A new facilities use tax of 10% of the ticket price will be charged at all public events in the YBC Center. It is estimated that this will be an average of 38 open use-days for trade and consumer shows with an average attendance of approximately 8,000 per day. The estimated ticket price is $4.50 in 1970 dollars, projected forwarded at 4% per annum.

- Sports Arena

The Sports Arena in YBC will have 14,500 permanent seats and 5,000 temporary seats for a total of 19,500. Although new sports teams are coming on the market, there are not yet any assurances that these new teams will use the YBC facility. Therefore, at this time, the viability of the Arena must be predicated upon its ability to attract events from existing facilities, including the Civic Center Auditorium, the Cow Palace and the Oakland Coliseum.

TABLE IX

Projected YBC Net Rental Income

	(1) Fixed* Expenses Per Day	(2) Variable* Expenses	(3) Estimated** Open Days	(4) Total*** Variable [(2) x (3)]	(5) Total Expenses [(1) + (4)]	(6) Estimated Revenues	(7) Net Opening [(16) - (5)]
FY 1978****	$358,154	$1,162	104	$120,848	$479,000	$624,000	$145,000
79	372,480	1,209	105	126,945	499,000	630,000	131,000
80	387,379	1,257	108	135,756	523,000	648,000	125,000
81	402,874	1,307	109	142,463	545,000	654,000	109,000
82	418,989	1,360	111	150,960	570,000	666,000	96,000
83	435,748	1,414	113	159,782	596,000	678,000	82,000
84	453,178	1,471	115	169,165	622,000	690,000	68,000
85	471,306	1,530	116	177,480	649,000	696,000	47,000
86	490,159	1,591	118	187,738	678,000	708,000	30,000
87	509,765	1,655	120	198,600	708,000	720,000	12,000
88	530,156	1,721	122	209,962	740,000	732,000	(8,000)
89	551,362	1,790	125	223,750	775,000	750,000	(25,000)
90	573,416	1,862	127	236,474	810,000	762,000	(48,000)

* Source ERA Report p III 46 with one-half of fixed expenses allocated to Convention Center carried forward from 1970 @ 4%.

** Variable expenses apply to open days only.

*** Estimated at one-third full hall and two-thirds half hall usage with 50% open days and 50% set-up with rates at $6,000 per open day full hall and $3,000 for half hall with set-up days at $3,000 and $1,500 respectively.

****Computed on a fiscal year basis of July-June.

TABLE X

Projected Total Net
Convention Center Revenues

FY	Rental	Possessory Interst Tax	Facilities Use Tax	Total
1978*	$145,000	$34,700	$152,600	$332,300
1979	131,000	36,000	158,700	325,700
1980	125,000	37,500	165,000	327,500
1981	109,000	39,000	171,700	319,200
1982	96,000	40,600	178,500	315,100
1983	82,000	42,200	185,700	309,900
1984	68,000	43,900	193,100	305,000
1985	47,000	45,700	200,800	293,500
1986	30,000	47,400	208,800	286,200
1987	12,000	49,400	217,200	278,600
1988	(8,000)	51,300	225,900	269,200
1989	(25,000)	53,400	234,900	263,300
1990	(48,000)	55,600	244,300	251,900

* Computed on a fiscal year of July-June.

It is reasonable to expect that events previously scheduled for the Cow Palace and Civic Center Auditorium will be attracted to the new facility due to the inadequacy of the former facilities. There do not appear to be any assurances, however, that events in Oakland will transfer to the YBC Arena. Due to the uncertainty of the Arena's clientele, it is difficult to project direct revenues with any precision.

Based upon previous studies conducted on the Sports Arena and upon the current pattern of sporting events in the Bay Area, it can be roughly estimated that the Arena will draw approximately of 150 use-days. The current average number of spectators at the Oakland Coliseum is approximately 5,000-5,500. Anticipating a slight increase in attendance at the YBC facility due to its strategic location and easy access by all modes of transportation, it is estimated that the average attendance is likely to be somewhat higher. A fairly arbitrary estimate of approximately 6250 spectators is assumed on the basis of these factors. Attendance for the Arena is expected to remain fairly constant in the foreseeable future.

The direct revenues associated with the Sports Arena which will be available to amortize the bonds are (1) the net operating revenue; (2) the facilities use tax; (3) the possessory interest tax from the concessionaires; and (4) receipts from television and advertising.

The estimates of the gate receipts are based upon the average ticket price for sports arena events in 1970 of $4.50,[172] inflated forward at 4% per year. Rental for the Arena is planned at 10% of ticket sales.

The facilities use tax is to be 10% or $.50 of every ticket sold, whichever is greater. Since it is estimated that, by the time the Arena is completed in 1978, the estimated average ticket price will have escalated above $5.00, the facilities use tax is estimated at 10% of the projected average ticket price. The possessory interest tax estimate was made using the capitalization method explained in the earlier section of the Convention Center. In the case of the Arena, the concessions are currently considered the only source for these tax revenues since no assurances have yet been received from the basketball and hockey teams.

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[172] Development Reserach Associates (DRA), Transient Housing Study, July 1971, pg. III.43, Table 19.

Arena advertising and television broadcasting receipts are expected to add another $157,500 per year[173] which summed with the other sources of income generate the gross income of the facility. Fixed expenses are represented by the Arena's share of the combined fixed expenses of the Arena and Convention Center which assumes that they will be under combined management. Variable expenses are expected to be $1200 per event in 1970 dollars.[174] The estimates of net revenue are generated from the difference between gross income and expenses.

Table XI shows the direct revenues attributable to the Sports Arena, which will be available to amortize the Public Facilities bonds.

The Parking Garage

The Parking Garage located beneath the Central Section of YBC will contain 1,800 parking stalls. 370 of these will be monthly parking stalls renting at $45.00 per month in 1970 dollars while the balance will rent at $.35 per hour. The rate for event parking has been set at $1.20 per event in 1970 dollars. These costs are inflated forward at 4% per year, amounting to $50.11, $0.46, and $1.58 respectively, by 1977, when the garage is to be completed.

It is expected that, with the reduction of overall parking spaces in the area and the substantial increase of employment and other activities, there will be an active demand for the spaces provided in the Public Parking garage.[175]

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[173] Op. cit., ADL, EIR, p. V-C-13, Table C-5.

[174] I bid, p. V-C-15.

[175] Refer to Section IV.D. of the Statement for an analysis of the automobile traffic in YBC.

Table XI
Estimated Annual Operating Income Of YBC Arena

	(1) Estimated Gate Receipts	(2) Rental and Facilities Use Tax	(3) Possessory Interest Tax	(4) Other Income	(5) Gross Revenues (2+2+4)	(6) Fixed Expenses	(7) Variable Expenses	(8) Gross Expenses (6+7)	(9) Net Revenue (5-8)
FY 1978**	$4,331,250	$ 866,250	$22,356	$118,125	$1,006,731	$268,615	$170,818	$439,433	$564,298
1979	6,006,000	1,201,000	31,000	157,500	1,389,500	372,480	236,867	609,347	780,153
1980	6,246,000	1,249,000	32,100	157,500	1,439,600	387,379	246,342	633,721	805,879
1981	6,496,000	1,299,000	33,400	157,500	1,489,900	402,874	256,196	659,070	830,830
1982	6,756,000	1,351,000	34,700	157,500	1,543,200	418,989	266,443	685,432	857,768
1983	7,026,000	1,405,000	36,100	157,500	1,598,600	435,748	277,101	712,849	885,751
1984	7,307,000	1,461,000	37,500	157,500	1,656,000	453,178	288,185	741,363	914,637
1985	7,600,000	1,520,000	39,000	157,500	1,716,500	471,306	299,713	771,019	945,481
1986	7,903,000	1,581,000	40,600	157,500	1,779,100	490,158	311,701	801,860	977,240
1987	8,220,000	1,644,000	42,200	157,500	1,843,700	509,765	324,169	833,934	1,009,766
1988	8,548,000	1,710,000	43,900	157,500	1,911,400	530,155	337,136	867,291	1,044,109
1989	8,890,000	1,778,000	45,700	157,500	1,981,200	551,361	350,621	901,983	1,079,217
1990	9,246,000	1,849,000	47,500	157,500	2,054,000	573,416	364,646	938,062	1,115,938

* Each 10% of gate receipts, for a total of 20%

** Computed on a fiscal year basis of July-June. Revenues for the first quarter of FY '78-79 have been deleted since the Arena is not scheduled for completion until September 1978.

Traffic estimates project that approximately 66% of the off-street parking spaces in the Project area will be used by all-day parkers. However, the percentage of all-day parkers using the public garage are expected to be slightly less, since it is the policy of the City to place hourly rates sufficiently high to discourage all-day commuters from using the facility. Nevertheless, the demands for parking (according to the projected modal split) will be sufficiently high that it is still likely that a majority of the spaces in the public garage (approximately 55¢) will still be used by commuters. The remainder will be used during the day by transient visitors to the retail stores, apparel mart, hotel, convention center, and office buildings. Since 80% occupancy is the maximum practical capacity of a parking garage, due to the rate of turnover, it is projected that the facility will have the following capacity over an eight hour day:

Monthly parking	370 (plus 10% over-rent)
Other commuters	620
Transient users (net over all 8 hrs)[176]	450
TOTAL	1440

Evening and weekend parking is estimated on the basis of projected use-days and average attendance of the Sports Arena, Theater, and Convention Center public exhibits.[177]

Table XII compares the revenues and expenses of the public parking garage in determining the garage's direct net revenues. Parking taxes on these and other proposed parking spaces are not computed since they will merely replace the parking tax revenues currently generated in the Project area.

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[176] Although there will be considerably more than 450 transient autos entering and exiting the garage during any eight-hour period, the net result is expected to be equal to 450 full-time parking spaces.

[177] These estimates are substantially lower than those used in the "Traffic Noise Air Quality" section, which is assumed simultaneous use of all facilities on a daily basis, in order to determine worst case conditions.

d. Hotel Tax

A substantial increase in hotel space has taken place in the City since 1960. Prior to 1959, there was 5,181 Class 1 hotel rooms in San Francisco. Between 1959 and 1972, 7,000 new hotel rooms were completed, and it is projected that from 1973 through 1976 an additional 2,752 rooms will be constructed. This means that there will be a total of 14,933 Class 1 rooms in San Francisco by the end of 1976, or a total of 5,450,545 use-days per year.

In 1970 there were approximately 6,000 hotel rooms in the City rated Class 2 and below. It is not expected that rooms in these classes will substantially increase in the coming years. This total supply of hotels and motels could then accommodate 7,640,545 use-days per year by 1976. If we project the growth rate of visitors forward from the estimate of the San Francisco Convention and Visitor Study[178] for 1970 at 3.337% per year growth, there will be an estimated 1,962,978 visitors using hotel space in 1977. If the average stay of 4.09 days per visitor is maintained, 8,028,580 use-days will be generated. Thus, it is anticipated that adequate demand will exist for the available space.

The annual room tax on hotels is currently set at 6%; approximately one-third of this tax has been allocated to assist in retiring the Public Facilities bonds.[179] Projections of hotel tax revenues available to amortize the bonds have been prepared by the City Controller. These are based upon level income for two years, followed by an annual increase of approximately 2%, with a one-time increase of 15% upon completion of the new convention facilities, as shown on Table XIII.

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[178] Herbert H. Oestreich, Ph.D., and Dirk J. Wassenaar, Ph.D., San Francisco Convention and Visitor Study Parts 1 & 2, Institute for Business and Economic Research, School of Business, San Jose State College, San Jose, California, May 1971 (Part I), and August 1972 (Part 2).

[179] The hotel tax has been increased in recent years for the sole purpose of assisting with YBC financing.

TABLE XII

Parking Garage
Estimated Annual Net Revenues

	Monthly Parking	Other Commuters	Transient Users	Event Parking	Gross Revenues	Total Expenses	Net Revenues
FY 1977*	$ 289,230	$ 570,280	$ 414,000	$ 375,598	$ 1,612,702	$ 528,270	$ 1,121.138
1978	300,900	593,092	430,560	390,621	1,677,210	549,401	1,159,772
1979	312,832	616,816	447,782	406,246	1,744,298	571,377	1,212,299
1980	325,345	641,488	465,694	422,496	1,814,070	594,232	1,260,791
1981	338,359	667,148	484,321	439,395	1,886,633	618,001	1,311,223
1982	351,893	693,834	503,694	456,971	1,962,098	642,721	1,363,671
1983	365,969	721,587	523,842	475,250	2,040,582	668,430	1,418,221
1984	380,608	750,451	544,796	494,260	2,122,206	695,167	1,474,947
1985	395,832	780,469	566,588	514,031	2,207,094	722,974	1,533,944
1986	411,665	811,687	589,251	534,592	2,295,377	751,893	1,595,302
1987	428,132	844,155	612,821	555,975	2,387,192	781,969	1,659,114
1988	445,257	877,921	637,334	578,214	2,482,680	813,248	1,725,479
1989	463,067	913,038	662,827	601,343	2,581,987	845,778	1,794,497
1990	481,590	949,559	689,340	625,397	2,685,267	879,609	1,866,278

*Computed on a fiscal year of July-June;garage completion scheduled for June 1977.

TABLE XIII

Project Hotel Tax Revenues for YBC Bonds

Year*	Annual Revenues
FY 1975	$ 1,998,100
1976	1,998,100
1977	2,038,062
1978	2,078,823
1979	2,390,647
1980	2,438,459
1981	2,487,228
1982	2,536,973
1983	2,587,712
1984	2,639,466
1985	2,692,256
1986**	2,746,101
1987	2,801,023
1988	2,857,044
1989	2,914,184
1990	2,972,468

* Fiscal year from July 1 to June 30.

** The years 1986 to 1990 have been added to Controller's projections, based upon the same annual increase of 2%.

TABLE XIV
(in thousands)

SUMMARY OF DIRECT REVENUES

	Private Leases	Tax Increments	Convention Center	Sports Arena	Parking Garage	Hotel Tax	TOTAL
FY 1978*	1,016*	1,564**	332	564***	2,281****	2,079	7,836
1979	360	3,240	326	780	1,212	2,391	8,309
1980	420	5,473	328	806	1,261	2,438	10,726
1981	478	6,683	320	831	1,311	2,487	12,111
1982	485	6,850	315	858	1,364	2,537	12,408
1983	485	8,325	310	886	1,418	2,588	14,012
1984	485	10,281	305	915	1,475	2,639	16,100
1985	485	10,281	294	945	1,534	2,692	16,231
1986	485	11,539	286	977	1,595	2,746	17,598
1987	485	11,539	279	1,010	1,659	2,801	17,773
1988	485	11,539	269	1,044	1,725	2,857	17,919
1989	485	11,539	263	1,079	1,794	2,914	18,074
1990	485	11,539	252	1,116	1,866	2,972	18,231

* Revenues are computed on a fiscal year basis of July-June, since amortization payments begin in July 1978, and other revenues, such as the hotel tax, are computed on this basis.

* Accrued from July 1974.

** 1978 figure includes improvements from 1977.

*** Computed for three quarters of the fiscal year only.

**** Accrued from June 1977.

TABLE XV

Summary of Amortization of Bonds
(In Millions)

	Amortization Cost*	Amortization Revenue	Balance
1978**	12.8	7.8	(5.0)
1979	13.8	8.3	(5.5)
1980	14.7	10.7	(4.0)
1981	14.7	12.1	(2.6)
1982	14.7	12.4	(2.3)
1983	14.7	14.0	(.7)
1984	14.7	16.1	1.4
1985	14.7	16.2	1,5
1986	14.7	17.6	2.9
1987	14.7	17.8	3.1
1988	14.7	17.9	3.2
1989	14.7	18.1	3.4
1990	14.7	18.2	3.5

* Amortization of the bonds at 6% (taken as an average of the potential amortization requirements); obviously if amortization costs are higher or lower. The balance will be effected accordingly.

** FY 1978 and 1979 amortization payments are slightly less, until the payments on the second issue begin in January 1980.

e. Summary of Direct Revenues

The total anticipated revenues which will be available to amortize the bonds beginning in July 1978 are summarized on Table XIII, and compared with the anticipated amortization costs on Table XIV. As shown on these Tables, it is expected that other resources will be required in the early amortization years to assist in making annual payments. By 1984, there will be an excess of direct revenues which can be deposited into the City's general fund.

3. Economic Impact on the City

Since all of the revenues listed in the previous section are to be used to amortize the bonds for the construction of the Public Facilities, those which without YBC, would have otherwise been available for deposit in the general fund must be considered as an annual economic loss to the City, as follows:[180]

- Annual property taxes previously available on land to be converted to public use, assessed at approximately $2,000,000.
- Revenue going to YBC which would normally have gone to Brooks Hall.

It is estimated that the annual impact upon the City's general fund from these sources will be as shown in Table XVI.

To determine the net economic impact upon the City, it is also necessary to analyze the indirect economic effects of the proposed Project which will not be consumed in amortizing the bonds, and then to weigh these against the above economic impact.

a. Marginal Delegate Expenditures

Based upon the total projected delegates shown in Table VII, it is possible to project the number of convention delegates that are directly attributable to YBC. These include those which would come to San Francisco only if YBC were constructed, and those which cannot be accommodated in existing facilities. TableXVII projects the marginal delegates attributable to YBC over the next two decades.

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[180] Although it can be argued that all of the projected office space would have been built elsewhere in the City and, thus, total property tax should be deducted, this is not a proven projection. In addition, office space in YBC is considered as a "new activity" in the City in terms of environmental impacts, and therefore will be considered as such here.

Table XVI

Initial Loss To General Fund

	Property Tax	Brooks Hall	Gross Loss
1978	251,800	174,000	425,800
1979	251,800	180,000	431,800
1980	251,800	187,000	438,800
1981	251,800	192,000	443,800
1982	251,800	198,000	449,800
1983	251,800	201,000	452,800
1984	251,800	193,500*	445,300
1985	251,800	187,500	439,300
1986	251,800	180,000	431,800
1987	251,800	174,000	425,800
1988	251,800	166,500	418,300
1989	251,800	160,500	412,300
1990	251,800	153,000	404,800

* In 1984 the loss to Brooks Hall begins to decline as Total number of delegates further exceeds Brooks Hall's capacity.

Table XVII

Marginal YBC Delegates

	Brooks Hall Overflow*	YBC Unique Clientele**	Total Marginal Delegates
1978	-0-	47,500	47,500
1979	-0-	47,500	47,500
1980	-0-	47,500	47,500
1981	-0-	47,500	47,500
1982	-0-	47,500	47,500
1983	1,969	47,500	49,469
1984	9,975	47,500	57,475
1985	18,113	47,500	65,613
1986	26,644	47,500	75,144
1987	35,438	47,500	82,938
1988	44,494	47,500	91,994
1989	53,813	47,500	101,313
1990	63,525	47,500	111,025

* This indicates the number of delegates projected in the average growth trend which could not be accommodated by Brooks Hall. In certain years when the total number of delegates fluctuates substantially upward, there could be a need for the YBC facility to handle Brooks Hall overflow, even though the average use-days are below Brooks Hall capacity. However, these times and number of delegates are impossible to predict.

** An average of 5 conventions per year, with an average of $9,500 delegates each.

The expenditures of these delegates during their stays in San Francisco can be considered as a positive economic impact attributable to the YBC Project. These expenditures will be primarily for hotel rooms, rental purchasers, and restaurant meals.

1. Hotel Expenditures

Estimates of hotel expenditures by marginal delegates is based upon the following factors:

- 80% of national convention delegates stay in local hotels;
- the average party size per delegate is 1.58 persons using 1.112 rooms per party;
- the average stay is 5.28 days and 4.92 nights;
- the average expenditure per room is $24.65 in 1970 dollars, inflated forward at 4% per annum.

The annual revenues are taxed by the City at 6%. Further, an additional amount of revenue can be attributed to increased property taxes for those hotel rooms which will serve the marginal delegates generated by YBC.

Property tax receipts are based upon the number of hotel rooms supported by YBC marginal delegates. Supportable rooms are determined by the average daily rooms sold to these delegates. Since a 75% vacacny factor in hotels is commonly regarded as an acceptable rate, the daily rooms sold to delegates are considered to represent 75% of the rooms supported. A total value is applied to each supportable room assessed at 25% and taxed at a rate of $12.59 per hundred dollars valuation. It is estimated that the average assessed value per room is approximately $8,272.[181]

Table XVIII projects the estimated net revenues to the City as the result of marginal delegates' hotel expenditures. This includes room tax at 6%, less that portion which will be used to amortize the Public Facilities bonds, for a net tax of approximately 4%, plus the estimated property tax receipts, to determine the net benefit to the City.

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[181] Op. cit., A.D. Little, EIR, p. V-C-26, Table C-12.

Table XVIII

Estimated Hotel Room Revenues from Marginal Delegates

	(1) Ave. Marginal Delegates	(2) # Delegates Using Hotel Rooms*	(3) # Rooms Sold**	(4) Total Use-Days***	(5) Annual Revenues****
1978	47,500	38,000	42,256	207,900	7,016,625
1979	47,500	38,000	42,256	207,900	7,297,290
1980	47,500	38,000	42,256	207,900	7,588,350
1981	47,500	38,000	42,256	207,900	7,891,884
1982	47,500	38,000	42,256	207,900	8,207,892
1983	49,469	39,575	44,007	216,514	8,890,065
1984	57,475	45,980	51,130	251,560	10,741,612
1985	65,613	52,490	58,369	287,175	12,753,441
1986	74,144	59,315	65,958	324,513	14,989,255
1987	82,938	66,350	73,781	363,003	17,438,664
1988	91,994	73,595	81,838	402,643	20,116,044
1989	101,313	81,050	90,128	443,430	23,040,622
1990	111,025	89,000	98,968	486,923	26,313,318

* 80% of total.
** 1.58 persons per delegate party, using 1.112 rooms per party.
*** 4.92 nights per room.
**** 24.65 per room, inflated forward from 1970 at 4% per annum.

TABLE XVIII (cont'd)

City Revenues From Marginal Delegate Hotel Expenditures*

	(1) Hotel Revenues	(2) Hotel Tax**	(3) Average Daily Rooms Sold***	(4) Supportable Rooms	(5) Property Tax Receipts****	(6) Net City Revenue (2+5)
1978	$7,016,625	$280,665	115	153	$159,341	$440,006
1979	7,297,290	291,892	115	153	159,341	451,233
1980	7,588,350	303,534	115	153	159,341	462,875
1981	7,891,884	315,675	115	153	159,341	475,016
1982	8,207,892	328,316	115	153	159,341	487,657
1983	8,890,065	355,603	121	161	167,673	523,276
1984	10,741,612	429,664	140	187	194,750	624,414
1985	12,753,441	510,138	144	192	199,957	710,095
1986	14,989,255	599,570	163	217	225,994	825,564
1987	17,438,664	697,547	182	243	253,071	950,618
1988	20,116,044	804,642	202	269	280,149	1,084,791
1989	23,040,622	921,625	247	329	342,635	1,264,260
1990	26,313,318	1,052,533	271	361	375,962	1,428,495

* Does not include peak years when additional marginal delegates would be accommodated.

** At 4% to delete portion being used to amortize the bonds.

*** Taken from Column 3 of Table XVII, divided by 365. Equal to 75% of Column 3 of this table.

**** Supportable rooms X $8,272 ÷ 100 X 12.59.

Retail Trade

There will be approximately 460,205 square feet of retail space included in the YBC project area. As shown in Table XIX, the growth in retail sales in San Francisco has averaged only 3.2% over the past six years, and retail employment has been declining over the past three years.

Therefore, the YBC retail space is not, in and of itself, expected to generate additional demand or revenue, without detracting from existing facilities in the downtown area.

However, an overall City increase in retail trade can be expected from the additional convention delegates which are attributable to YBC, or the marginal delegates.

The average retail expenditure per national convention delegate in 1970 was $51.87, slightly above that spent by the average visitor.[182] Taking the projected marginal increase in delegates attributable to YBC Convention Center, the net impact on the City can be projected on an annual basis.[183]

Restaurant Industry

The impact on the restaurant industry is estimated by methods similar to those used earlier to assess the impact on the hotel industry. The factors used are the following:[184]

- 1.56 persons per delegate party
- 5.28 days in the average stay
- 2.5 meals in the estimated average per day
- $100.15 in 1970 dollars was the average restaurant expenditure per delegate stay, or an average of $4.86 per person per meal, inflated forward at 4% per annum.

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[182] Op. cit., Herbert H. Oestreich, Part 2, pp. 63-70.

[183] This does not include supportable square footage of retail space, but rather tax only. It is expected that the retail business generated by marginal delegates will also boost the property tax accruing from retail property to a certain degree.

[184] Op. cit., Herbert H. Oestreich, Part 2, pp. 63-70.

Table XIX
Past Retail Sales

Year	Retail Sales	% Change	Retail Employment	% Change
1966	$1,239,980	N.A.	55,300	N.A.
1967	1,273,603	2.7%	55,500	.36%
1968	1,360,579	6.8%	56,100	1.1%
1969	1,397,430	2.7%	59,300	5.7%
1970	1,382,457	1.1%	56,800	(4.2%)
1971	1,422,409	2.9%	54,800	(8.1%)
1972	N.A.		54,000	(3.7%)

Source: California Statistical Abstract, 1969 and 1972; Area Manpower Review San Francisco-Oakland SMSA Annual Outlook and Planning Report 1973, Department of Human Resources Development, April 1973.

TABLE XX

Marginal Delegates - Retail Expenditures

Year	Marginal Delegates	Adjusted Expenditures*	Estimated Total Sales
1978	47,500	$ 70.97	$ 3,371,075
1979	47,500	73.81	3,505,975
1980	47,500	76.76	3,646,100
1981	47,500	79.83	3,791,925
1982	47,500	83.02	3,943,450
1983	49,469	86.34	4,271,153
1984	57,475	89.79	5,160,680
1985	65,613	93.38	6,126,942
1986	74,144	97.12	7,200,865
1987	82,938	101.00	8,376,738
1988	91,994	105.04	9,663,050
1989	101,313	109.24	11,067,432
1990	111,025	113.61	12,613,550

*Inflated at 4% per annum.

**1% of all sales.

Table XXI projects the total restaurant expenditures by marginal convention delegates. Sales tax accruals to the City are 1% of all sales.

b. Sports Arena Spectators

Hotel Expenditures

It has been estimated that 1% of all persons attending events at the YBC Sports Arena will stay in local hotels.[185] Estimating that one-half of these persons will stay alone and the balance will double up, it is possible to project the room-days demanded by this group. The average expenditure per room is approximately $20.49 in 1970 dollars. This is somewhat less than the average expenditure per national delegates, since it is anticipated that fewer sports spectators will stay in first class hotels.

Using the same method as used for marginal delegates, Table XXII projects the hotel tax revenue attributable to sports spectators. Again, the hotel room tax is computed at 4% rather than 6%, in order to delete that portion allocated to amortize the Public Facilities bonds.

It is further estimated that 15% of those attending events at the Sports Arena will eat dinner in San Francisco restaurants, paying an average of $6.25 per meal in 1970 dollars, inflated forward at 4% per annum. This expenditure is projected on Table XXIII, to determine the gross receipts tax to the City.

c. Non-cash Credits

As discussed in Section II, local governments are required to match federal funds on a one-third/two-thirds basis in order to be eligible for a Loan and Grant contract. The local share may be contributed as cash, or in the form of non-cash contributions such as site improvements or public facilities. The contributions of one project may be attributed to another, in instances where one has a surplus. Non-cash contributions are credited on a percentage basis in accordance with HUD Urban Renewal regulations, and the particular nature of the contribution.

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[185] *Op. cit.*, ADL, EIR, p. V-A-98, Table A-58.

Table XXI

Estimated Restaurant Sales
Marginal Delegates

	Ave. Marginal Delegates	Adjusted Expenditure*	Total Sales	Sales Tax to City**
1978	47,500	$ 137.06	$ 6,510,350	$ 65,103
1979	47,500	142.54	6,770,650	67,706
1980	47,500	148.25	7,041,875	70,418
1981	47,500	154.18	7,323,550	73,235
1982	47,500	160.34	7,616,150	76,161
1983	49,469	166.76	8,249,450	82,494
1984	57,475	173.43	9,967,889	99,678
1985	65,613	180.36	11,833,960	118,339
1986	74,144	187.58	13,907,931	139,079
1987	82,938	195,08	16,179,545	161,795
1988	91,994	202.89	18,664,662	186,646
1989	101,313	211.00	21,377,043	213,770
1990	111,025	219.44	24,363,326	243,633

* Inflated at 4% per annum.
** 1% of all sales.

TABLE XXII
IMPACT OF SPORTS ARENA
ON HOTEL TAX & PROPERTY TAX REVENUES

	(1) Annual Attendance*	(2) Estimated Number Staying In Hotels**	(3) Annual Room Days Sold***	(4) Annual Room Revenues****	(5) Supportable Rooms	(6) Property Tax Revenues	(7) Hotel Tax Revenues*****	(8) Net Revenue to City (6+7)
1978	703,125	7,031	5,273	$147,865	14	$14,580	$5,915	$20,495
1979	937,500	9,375	7,031	205,024	22	22,911	8,201	31,112
1980	937,500	9,375	7,031	213,225	22	22,911	8,529	31,440
1981	937,500	9,375	7,031	221,754	22	22,911	8,870	31,781
1982	937,500	9,375	7,031	230,624	22	22,911	9,225	32,136
1983	937,500	9,375	7,031	239,849	22	22,911	9,594	32,505
1984	937,500	9,375	7,031	249,443	22	22,911	9,978	32,889
1985	937,500	9,375	7,031	259,421	22	22,911	10,377	33,288
1986	937,500	9,375	7,031	269,798	22	22,911	10,792	33,703
1987	937,500	9,375	7,031	280,590	22	22,911	11,224	34,135
1988	937,500	9,375	7,031	291,813	22	22,911	11,673	34,584
1989	937,500	9,375	7,031	303,486	22	22,911	12,139	35,050
1990	937,500	9,375	7,031	315,625	22	22,911	12,625	35,536

* Ave. annual attendance is computed on the basis of 6,250 spectators for 150 events. Only 75% of this amount is attributable to FY 1978, since the Arena is not scheduled for completion until the second quarter of the fiscal year.

** 1% of total

*** Based upon 50% staying alone, and 50% doubling up.

**** $20.49, inflated forward at 4% per annum from 1970.

***** Computed at 4% to delete the portion used to amortize the bonds.

Table XXIII

Arena Spectators - Restaurant Expenditures

	Annual Attendance	Meal Expenditures*	Tax to City
1978	234,375	$ 300,086	$ 3,000
1979	937,500	975,000	9,750
1980	937,500	1,014,000	10,140
1981	937,500	1,054,560	10,545
1982	937,500	1,096,742	10,967
1983	937,500	1,140,061	11,400
1984	937,500	1,186,236	11,862
1985	937,500	1,233,685	12,336
1986	937,500	1,283,033	12,830
1987	937,500	1,334,354	13,343
1988	937,500	1,387,728	13,877
1989	937,500	1,443,237	14,432
1990	937,500	1,500,967	15,009

* 15% of all attendance @ $6.25 per meal in 1970 dollars inflated forward at 4% per annum.

Based upon all outstanding Urban Renewal Loan and Grant Contracts in San Francisco, the City "owes" the Federal Government a total of approximately $86,500,000 as its local share. Of this total amount, approximately $49,600,000 has already been provided or allocated by projects other than YBC, and approximately $8,200,000 is to be provided as credits for the BART stations serving YBC. The balance is to be supplied through credits for the Central Concourse, Parking Garage and Exhibit Hall in YBC. Although the amount of eligible credits from the YBC Public Facilities is expected to exceed the amount required, only the amount required, or approximately $28,700,000 is considered here as a positive economic benefit.[186]

Without these non-cash credits, the City would be required to provide an equal cash amount or other public improvements to repay the Federal Government. Therefore, the YBC contribution is considered to have an economic benefit to the City.

In amortizing the value of these non-cash credits, it is assumed that they are worth what it would have taken to finance the local share of $28,000,000 in the same fashion as the construction costs; that is, at 6% over 35 years. The annual net economic benefit to the City from non-cash credits is then estimated at approximately $1,968,070.

d. Employment

On-Site

Total on-site YBC employment is expected to be approximately 35,484, computed as shown in Table XXIV.

It is estimated that a maximum of 26% or 9,226 of these jobs will go to San Francisco residents.[187]

These statistics represent the Project of full employment. For the purpose of assessing the worst case environmental impacts of the proposed Project, it was assumed that these represented new jobs and new commuters to the City. However, in reality, it is likely that a portion of this employment population will represent a shift from

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[186] Total projected credits equal approximately $54,300,000.

[187] Refer to Section IV.E.1 "Traffic" for a discussion of future San Francisco employment.

Table XXIV

Projected On-Site Employment

Source		Employees
Office Space - 6,556,200 sq. ft. @200 sq. ft./employee	=	32,781
Apparel Mart - 1,086,000 sq. ft. @1,000 sq. ft/employee	=	1,086
Retail Space - 343,000 sq. ft. @800 sq. ft./employee	=	429
On-site Hotel - 700 rooms @.7 employees/room	=	490
Exhibit Hall*	=	281
Parking Garage	=	46
Sports Arena	=	131
Heating Plant	=	6
Concourse	=	5
Salvation Army Community Center	=	20
Community College (staff and retail space)	=	209
TOTAL		35,484

existing facilities in the City, or employment which would be provided through the natural growth of office and retail space elsewhere. However, as discussed previously, to ignore this employment population as an economic benefit to the City would also necessitate ignoring it as a potential negative environmental impact. Most likely, the balance of the two falls some place in between the maximum estimates provided in this Statement.

Off-Site

Some off-site employment in the hotel, restaurant and retail industries can be attributed to the business generated by marginal delegates and Arena spectators. On the basis of .7 employees per supportable hotel rooms, 1 employee per 100 meals sold, and 1 employee per 800 square feet of supportable retail space, it can be estimated that approximately 1,000 off-site job opportunities are generated by YBC convention and sports business in the early years of the project, and that the number accelerates thereafter.[188]

These employees are then supported by revenues exported from outside the region, which have a multiplier effect as the income is reused locally. This income is not incorporated into the summary of economic cost and benefits to the City, because it is extremely difficult to trace and account for it accurately. However, it can have an important impact upon the local economy.

Construction Employment

An analysis of the construction employment generated by YBC was prepared by the Arthur D. Little Company in the Draft Environmental Impact Report,[189] including both on-site employment and off-site materials fabrication employment. The basic factors used in computing gross construction employment were the following:

- 52.5% of total construction costs involves on-site labor costs;
- $12,676 was the average labor cost per on-site worker in 1971, inflated forward at 8% per annum;
- construction materials comprise approximately 10% metropolitan area labor content; and
- $11,980 was the average labor cost per off-site worker in 1971.

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[188] Refer to Tables XVIII, XX, XXI, XXII, and XXIII.

[189] Op. cit., ADL, EIR, pp. V-A-57 to V-A-70.

TABLE XXV

c. Marginal Construction Employment Impact of YBC

	CONSTRUCTION EMPLOYMENT WITH YERBA BUENA	CONSTRUCTION EMPLOYMENT WITHOUT YERBA BUENA	NET DIFFERENCE	PERCENTAGE IMPACT ON SAN FRANCISCO	PERCENTAGE IMPACT ON SMSA
1972	213.0	0	213.0	1.0	0.3
1973	937.0	253.0	684.0	3.1	0.8
1974	2,859.0	829.0	2,030.0	9.2	2.6
1975	3,707.0	1,075.0	2,632.0	12.0	3.4
1976	2,828.0	1,216.0	1,612.0	7.3	2.1
1977	376.0	259.0	117.0	0.5	0.2
1978	1,041.0	1,041.0	1,041.0	4.7	1.4
1979	1,058.0	984.0	74.0	0.3	0.09
1980	842.0	715.0	127.0	0.6	0.2
1981	637.0	605.0	32.0	0.1	0.04
1982	363.0	363.0	0	0	0

Source: A.D. Little and URS Research Company, Draft Environmental ImpactStatement, p. V-A-69, Table A-36.

Based upon these factors, the total YBC-generated construction employment was projected, as shown on Table XXVI. Again, this represents maximum employment, although a larger portion of this employment may have been generated in San Francisco without the construction of YBC. Approximately 33% of the labor force is estimated to be San Francisco residents.

4. Summary of YBC Economic and Fiscal Impact

Table XXVI projects the total economic costs and benefits of the proposed Project, exclusive of employment and the amortization fund. The net fiscal impact, including the amortization fund, is presented in Table XXVII

As shown, the City will suffer a financial loss during the early years of the Project. About 1983, the Project will generate surplus funds, and by 1985, a surplus will be realized in the general fund, which will accelerate in each subsequent year. These estimates do not reflect the City's increased economic base due to imported revenues and the multiplier effect off increased personal income. These benefits are difficult to measure with precision, but are critical to maintaining a viable metropolitan economic base.

Impact of the Plan Changes[190]

- Proposed Housing

As discussed above, the proposed housing is currently recommended to be financed in an amount approximately equal to 8.3% of the hotel tax revenues and 100,000 of the Convention and Visitors Bureau fund on an annual basis.[191] Since these revenues would not generally be available to the City's general fund, there is not expected to be any significant negative fiscal impact from the construction of the housing.

However, the three housing sites within the Project area which will now be publicly owned were previously designated for office use and, therefore, the property tax revenues from these sites will be lost.

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[190] Refer to Section III.F. of this Statement for a description of the proposed Plan Changes.

[191] This is the method of financing recommended in the TOOR/ Redevelopment Agency settlement, and appears to be the method which will be employed.

TABLE XXVI
(in millions)

YBC Net Fiscal Impact

	Economics Balance	Amortization Fund Balance	Net Annual Impact	Cumulative Impact
1978	2.1	(5.0)	(2.9)	(2.9)
1979	2.1	(5.5)	(3.4)	(6.3)
1980	2.1	(4.0)	(1.9)	(8.2)
1981	2.2	(2.6)	(0.4)	(8.6)
1982	2.2	(2.3)	(0.1)	(8.7)
1983	2.2	(0.7)	1.5	(7.2)
1984	2.3	1.4	3.7	(3.5)
1985	2.5	1.5	4.0	0.5
1986	2.6	2.9	5.5	6.0
1987	2.8	3.1	5.9	11.9
1988	3.0	3.2	6.2	18.1
1989	3.2	3.4	6.6	24.7
1990	3.4	3.5	6.9	31.6

TABLE XXVII

Preliminary Economic Costs and Benefits
(000's)

	Funds Previously Available To General Fund (1)	Hotel Revenues Marginal Delegates (2)	Retail Revenues Marginal Delegates (3)	Restaurant Revenues Marginal Delegates (4)	Hotel Revenues Arena Spectators (5)	Restaurantes Revenues Arena Spectators (6)	Non Cash Credits	Gross Impact
1978	(462)	$ 440	$ 34	$ 65	$ 20	$ 3	1,968	2,068
1979	(432)	451	35	68	31	10	1,968	2,131
1980	(439)	463	36	70	31	10	1,968	2,139
1981	(444)	475	38	73	32	11	1,968	2,153
1982	(450)	488	39	76	32	11	1,968	2,164
1983	(453)	523	43	82	33	11	1,968	2,207
1984	(445)	624	52	100	33	12	1,968	2,344
1985	(439)	710	61	118	33	12	1,968	2,463
1986	(432)	826	72	139	34	13	1,968	2,620
1987	(426)	951	84	162	34	13	1,968	2,786
1988	(418)	1,085	97	187	35	14	1,968	2,968
1989	(412)	1,264	111	214	35	14	1,968	3,194
1990	(405)	1,428	126	244	36	15	1,968	3,412

(1) Table XIII
(2) Table XVI
(3) Table XVIII
(4) Table XIX
(5) Table XX
(6) Table XXI

- Proposed Hotel

As discussed above, the demand for hotel rooms is expected to exceed available rooms by 1977. This combined with the propitious location of the proposed YBC hotel appear to assure that the hotel will receive adequate business.

The YBC hotel is estimated to provide 5% of the total hotel room use-days available in the City at the time of its completion. Although this hotel is likely to receive priority use due to its strategic location, it is not expected to threaten the City's existing hotels, due to the size of the total demand and to the YBC hotel's small percentage of the total use-days.[192]

Since the hotel is to be constructed with private funds, it will not place any additional burden upon the City's general fund. To the contrary, it will provide approximately $175,500 per year in site rental, as well as property tax increments to the amortization fund and approximately $497,500 per year in room tax revenues, beginning in 1977 and inflated forward at 4% per year. Thus, the net economics effect of the proposed hotel is expected to be positive.

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[192] YBC hotel annual use-days = 255,500; total hotel use-days in 1976 = 5,450,545; total estimated use-day demand in 1977 = 8,028,580.

V. ALTERNATIVES

V. Alternatives

Alternatives to the proposed Project are considered to be major alterations of the area from what is currently planned. More minor changes, such as the design of roof tops or the technique for guarding against areal subsidence, are considered to be "mitigating measures" which can be easily implemented within the context of the existing plan. Many of these potential and actual mitigation measures have been discussed in relation to the specific environmental impacts. In accordance with guidelines promulgated by the Council on Environmental Policy and by HUD, no final recommendation is made in this Draft Statement regarding required alternatives, mitigating measures, or proposed HUD action pending response from interested citizens, organizations and agencies.

The alternatives which are considered here include:

- No Project;
- Disapproval of the requested plan changes
  - (a) Hotel
  - (b) Low-income Housing;
- Conversion of part or all of the Project to park and recreational uses; and
- Conversion of the area to a "New-Town-in-Town."
- Parking reduction

A. No Project

Although the alternative of "no project" is identified in environmental guidelines as a mandatory alternative for consideration, it was intended by its promulgators to be considered prior to the initial approval and funding of a project. In the case of YBC, the project already exists with concomitant approval and funding and thus, the most realistic interpretation of this alternative is "what is the minimum action required to extricate federal and local involvement from this Project?"

The major outstanding legal and financial obligation which must be satisfied before terminating public involvement with the Project is the repayment of the Project loan, authorized in the amount of approximately $64,000,000 and the provision of the outstanding local share in the amount of approximately $28,600,000.

The original loan was authorized by HUD in 1966 and has been amended several times since then. It has been used to acquire virtually all of the Project land (over 86%) and to provide extensive relocation, demolition, and site improvement activities. As discussed in Section II of this Statement, this loan is repaid by a combination of federal grant funds and the proceeds from the sale of Project land. Adequate grant funds in the amount of approximately $45,000,000 have already been allocated by HUD to satisfy its portion of the Project's existing Urban Renewal financing plan. However, approximately $19,000,000 in land still remains to be sold for repayment of the loan.

The quickest way to reach "no project" status is to sell each parcel of land to the first bidder or bidders who present a fair market offer. This has the very obvious disadvantage of leading to the development of a totally unplanned area. It is difficult to predict if there would be a market for this land under such conditions, and even more difficult to predict what type of development would result. The current zoning restrictions would limit development to primarily office, retail and light industrial development.

Although this would relieve the City of any further responsibility for developing the Project land, assuming it could be sold, the City would still be obligated to produce an additional $28,600,000 in cash or sufficient non-cash credits to match those federal funds already obligated but unmatched in YBC and other projects.[193] This would represent a significant economic burden upon the City's finances, with the economic return being extremely uncertain.

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[193] Refer to Section IV, F, "Economics and Financing for an explanation of YBC's non-cash credits.

Assessing the environmental impacts of such an alternative is virtually impossible due to the uncertainty of the eventual use. However, if unplanned urban growth of the past is an indicator, the adverse environmental impacts are likely to be far more severe than those of the currently planned Project.

A variation upon this theme would be to sell all of the land on the private market in accordance with a revised plan. However, this could not be considered as "no project" or "minimum action," but rather as a major alternative to the currently planned Project. Such a plan is discussed in Alternative #D below.

B. Disapproval of the requested plan changes

The triggering action for the preparation of this EIS and the major decision issue before HUD, is the cumulative effect of two requested changes to the originally approved Urban Renewal Plan. These changes are the inclusion of a hotel in the Central Blocks area in place of a 510,000 square-foot office building, and the land use change of three parcels in the Peripheral Blocks area from commercial to residential use. The impacts of each of these Plan Changes are discussed in detail in Section IV of this Statement, and, thus, will be summarized only briefly here.

These proposed changes are the only major YBC decision issues which are currently awaiting HUD action, and, therefore, the alternative of approval or disapproval of these changes warrants special attention here.

(1) Disapproval of the Proposed Hotel

Disapproval of the request for the inclusion of a hotel in the Project area would leave in effect the original plan which called for an office building on that site of approximately 510,000 square feet. As discussed in detail in each of the environmental impact sections, the hotel produces less solid and liquid wastes than the proposed office building, places a smaller demand upon utilities and their related natural resources, and contributes fewer vehicles to the projected modal traffic split.

A disadvantage of the hotel is that it provides fewer employment opportunities than the proposed office building (490 employees as opposed to 2,550). In terms of revenue to the City, each use would be required to provide a similar site rental payment; however, the hotel would provide additional revenues through the 6% room tax.

A negative design impact is expected as a result of the hotel's current design which exceeds the bulk limitations of the Urban Design Plan and appears to create undesirable shadow and wind effects on portions of the central plaza area. This cannot be compared with the office building, since no design plan was developed for this latter structure. In general, this appears to be the hotel's only significant negative impact. Even when not compared to the office building, the hotel's impact upon the environment is extremely minor in absolute terms.

Redesign of the hotel would not only help to remedy the urban design impacts discussed above, but could also slightly affect the air quality and noise climates of the area. A reduction in the hotel's bulk and a well articulated and irregular facade would reduce the canyon effect of the Project which tends to channel and increase the concentration of air pollutant and noise emissions.[194]

Thus, although disapproval of the hotel does not appear to be a superior alternative to approval, appropriate redesign of the hotel would appear to improve its environmental impact.

(2) Disapproval of the Proposed Housing

Disapproval of the proposed land use change to include low-income housing on three parcels within the peripheral blocks area would leave in effect the originally approved plan providing for office buildings on these sites, totaling approximately 400,000 square feet. Since the environmental conditions surrounding a residental area are considered more critical and are more stringently regulated than those surrounding office and commercial areas, it is important to consider the effect of the South of Market environment upon the proposed housing, as well as the impact of the housing upon the area.

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[194] The same principle would apply to other buildings in the area, most specifically to the south-block office building and the apparel mart discussed in Section IV., C, 2, "Urban Design."

- Effect of the Environment upon the Proposed Housing

The proposed housing is to be placed amidst other low-income elderly housing along the southwestern border of the Project, in an area already considered by City standards to have a disproportionately high ratio of low-income housing units.

The housing sites are adjacent to areas currently zoned for business services and light industrial uses. One of the sites (at Fourth and Harrison Streets) is also adjacent to heavily trafficked streets and freeway ramps.

The noise levels throughout the area exceed those which are generally considered acceptable for residential use by HUD standards. Due to the Project's proximity to the James Lick/Bayshore freeway and to major downtown access streets, the air pollutant concentration in the area is higher than in residential areas of the City and can occasionally exceed applicable standards during simultaneous south-wind and peak period conditions. The availability of low-cost grocery stores and commercial developments is currently somewhat less than in other areas of the City. However, the transportation system, terrain and available social services are conducive to the proposed use, and the area provides familiar surroundings and geographical location for the residents to be displaced by Project action.

- Effect of the Housing Upon the Environment

The proposed housing is expected to produce less liquid and solid wastes than the proposed office space and to generate a smaller demand upon the utilities and their related natural resources, with the exception of natural gas, in which case the demand will be slightly greater. The housing will contribute substantially fewer cars to the project modal traffic split in the area than will the proposed office space.

The concentration of low-income housing in the South of Market area would be further increased beyond the desired City ratio; however, a well-articulated community desire -- and now a requirement of a legal settlement -- would be satisfied. The proposed action would also increase the number of standard low-income housing units in the city.

The economic benefits of the housing would be significantly less than those of the office space. The job opportunities and property tax revenues of the approximately 400,000 square feet of office space would be lost to the city.

- Balancing

The economic losses and the potential impact of the environment upon the housing in the South of Market area are negative impacts which need to be balanced against the positive impacts of increasing the number of available standard low-income housing units in the city; responding to a community-expressed desire, and now legal obligation, for additional housing in this area; and generally reducing the negative environmental impacts of the overall Project area. The weighing of these impacts is primarily a value judgment, and such a judgment has been made by the local governing body in their approval of the proposed Plan Change to include housing.

As a means of protecting the proposed housing from the existing environmental conditions of the area, alternative housing sites were considered. The consideration of locating the proposed housing outside of the South of Market area was rejected in the course of the discussions leading to the legal settlement, since it would ignore the desire of the area's residents to have housing provided in the familiar South of Market surroundings. Alternative sites within the Project area do not offer superior protection from the traffic, noise, and air quality impacts of the area, since these factors are fairly constant throughout the entire area.

However, major protection could be provided to the housing sites through proper design techniques, shielding landscaping, and proper insulation and engineering techniques. Precautions and mitigating measures such as these would appear more appropriate than blanket disapproval of the proposed housing.

C. Conversion of Part or All of the Area to Park and Recreational Uses

Although it is beyond the authority of HUD to dictate a plan change of this magnitude to the local governing body, it is a project alternative which has been suggested by some interested citizens and is explored here for benefit of persons or public bodies which are in a position to propose such a change, and as a basis of comparison to the currently planned activities.

Since conversion of the entire area to a park would require an initial financial investment of approximately $19,000,000 on the part of the City merely for the purchase of the land, with no economic return to repay the investment, the supporters of the park concept proposed a park in the Central Blocks area of the Project only, with surrounding land to be used for office purposes. The tax increments from office land would be devoted to repaying the cost of purchasing, developing and maintaining the park.

In most instances, the park alternative would reduce the adverse environmental impact of the proposed Project. The impacts generated by the Public and Private Facilities in the Central Blocks area would be deleted, including the generation of liquid and solid wastes; the demand upon the utilities and their related natural resources, with the exception of water and a small amount of electricity for lighting the park; contribution to the projected modal traffic split; accommodation of the automobile by the two underground garages, and the accompanying noise and air pollution.

The park alternative would not respond to the City's policy of concentrating major development along the Market Street traffic corridor in order to relieve development pressure in the other areas of the city and to facilitate the use of public transit. Whether or not the development of a park would attract a similar amount of private development to the peripheral parcels as would the currently proposed project is difficult to determine, and would require an in-depth market study.

The park would also not provide the base for increasing or accommodating an increase in San Francisco's primary export industry of convention and tourist business. As discussed in the section on "Economics and Financing," an export industry, such as this, which infuses non-regional monies into a metropolitan area is considered essential to the economic viability of an area. Further, the park would not provide support for the large number of hotel rooms recently constructed in anticipation of YBC. Employment opportunities offered on-site in the Central Blocks area and generated off-site would also not be provided by a park and site rentals from the private leases would be lost. However, although the park alternative would not generate long-term economic benefits to the City, its short-term costs of construction can be anticipated to be a small fraction of that required for the Public Facilities. Conversely, it is unlikely to be sufficient to meet the local share requirement and the City would be obligated to provide the balance from other sources.

The cultural and social impact upon the city of changing the area to a park is likely to be mixed and primarily a matter of personal preferences. The indoor entertainment offered by the Sports Arena, theater and public exhibit hall may be more pleasurable to some, while the outdoor green area may be more pleasurable to others. Although the currently proposed Project provides approximately 11.7 acres of open plaza area with substantial art objects and landscaping, this would be of a different nature than a totally open green area.

There are substantial pros and cons related to the concept of a large open park in the YBC Project area. Although certain purposes would be served by changing the Central Blocks area to a park, such as reducing the negative environmental impacts of the area as it now exists and as planned, the park would sacrifice the City's primary objective of increasing the export and economic base in the city. Conversion of the Central Blocks area to a park would require a decision on the part of the local governing body that the objectives of a park in this area are more appropriate to the needs of the City than the economic and other benefits of the Central Blocks area as currently planned.

D. New-Town-in-Town

As discussed in Section III, H., of this Statement, an initiative petition was circulated prior to the election of November 1973 by a group known as Friends of Yerba Buena, calling for an alternative method of financing the YBC Public Facilities and for certain changes in the composition of the Project elements. Although the petition did not receive an adequate number of signatures to be placed on the ballot, it, nevertheless, presents an alternative to the currently planned project. As with the park alternative, it is beyond HUD's authority to mandate a plan change of this magnitude; however, the alternative is presented here for the consideration of local officials who have the prerogative to propose such a change, and as a basis of comparison with the currently proposed activities.

The initiative required the repeal of the existing financing agreement for YBC and commencement of a project in conformance with HUD's "New-Town-in-Town" program and the State's "New Neighborhood Community" program. The basic concept is the provision of balanced mixed land uses and social services in an identified underutilized or blighted urban area.

The initiative called for the following land used in YBC in the percentages indicated below (exclusive of streets and public rights-of-way).[195]

Percentage	Approximate Acreage	Use
25% (not less than)	14.1	low and moderate income housing; including not more than 10% of this total (approximately 1.4 acres) for a community health care and cultural center.
15% (not less than)	8.5	R-5 zoning classification (high density residential)
15% (not less than)	8.5	Public open and recreational space

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[195] Approximately 35% of 30.9 acres are currently in streets and public rights of way.

19% (not more than)	10.7	C-3-0 zoning classification (downtown office and commercial)
13% (not less than)	7.3	C-3-S zoning classification (downtown support)
13% (not less than)	7.3	M-1 zoning classification (light industrial and manufacturing)
100%	56.4 acres	

Height limits of 84 ft. were proposed for all areas, except those zoned C-3-0. In the latter case, heights up to 240 ft. were permitted. Public parking was prohibited.

Planning and construction of the low and moderate-income housing and of the community health care and cultural center would be financed through the allocation of not less than 20% of the annual funds received by San Francisco under the provisions of the State and Local Assistance Act of 1972 until completion of the housing.[196] Following construction, a percentage adequate to maintain the housing would be allocated annually. Hotel tax allocations of not less than 36% would be used to provide rent supplement payments to the residents of the proposed housing.

It is not specifically stated how the open space and other land uses would be financed, but it is assumed that the former would be developed and maintained with public funds, and the latter, privately.

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[196] These funds are known as "general revenue sharing." San Francisco's allocation is approximately $26.5 million annually; thus the amount specified for the housing units is approximately $5,300,000 annually until completion.

Due to the lack of specific data, such as the number of square feet of commercial or manufacturing space, or the number, size and design of the proposed units, it is not possible to provide a detailed or specific economic or environmental assessment of the impacts of the proposed alternative. However, for purposes of making a general analysis and comparison of the proposed alternative, certain assumptions concerning this proposal are made:

(1) It is assumed that certain land uses in the existing Plan and the proposed alternative are comparable, and can, therefore, be ignored in the comparative analysis, since they balance each other out. Included are the following:

  (a) Approximately 33%, or 4.6 acres, of the alternative low and moderate income housing is balanced out by the acreage allocated for existing housing (Clementina Towers and a portion of Salvation Army Apartments) and proposed housing under the current plan (although the financing schemes are different);

  (b) The acreage proposed for manufacturing and light industrial uses in both plans is relatively comparable; and

  (c) Approximately 50% or 12.5 acres of the currently proposed office space in the peripheral blocks area is balanced out by the alternative's 18 acres of C-3-0 and C-3-S land use allocation. (Due to the difference in height restrictions, one acre of alternative office space is considered to equal .7 acres of office space in the existing plan.)

  Therefore, the essential land uses remaining to be compared are the following:

  (d) Existing Plan: The entire Central Blocks area (approximately 18 acres, exclusive of streets and ways) and approximately 13.2 acres of office space in the Peripheral Blocks area;

  (e) Alternative Plan: approximately 9.5 acres of low and moderate income housing, 8.5 acres of market rate housing, and 8.5 acres of public open space.

(2) It is assumed that the "net" alternative housing will include units for both families (approximately 20%) and single individuals or couples (approximately 80%) and will be of medium density since buildings are limited to approximately eight stories. An average of 50 units per acre is presumed, for a total of approximately 900 residential units, housing approximately 1,600 persons.

(3) It is assumed that no elaborate or expensive designs are envisaged for the public open spaces, and that development and annual maintenance costs would be relatively modest (approximately $500,000 and $50,000, respectively).

(4) It is assumed that, under both of these Plans, City funds would be required to purchase either 18 acres for the Central Blocks area or the 18 acres for the park and low and moderate income housing. Therefore, land cost to the City is balanced out.[197]

Comparative Impacts

One unavoidable impact which would occur if any major development alternative to the existing YBC Plan were adopted at this time is the substantial expense in replanning the area. Not only would the existing cumulative investment of time and money spent for planning, administering, designing, and conducting intensive studies on the current plan be lost (approximately $8 million to date in local and HUD funds), but similar investments would be needed for any alternative development plan. In addition, existing legal obligations to private developers would have to be honored in some fashion in the selection of any alternative plan. It is not clear in the initiative proposal how these financial and legal obligations would be met. It can be anticipated that substantial added costs would be required for the proposed alternative for these purposes.

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[197] Although the cost of the land would likely be less for the alternative uses, the City would still be required to make up the deficit in the loan repayment fund of the Urban Renewal program, resulting from the reduced land proceeds.

Comparing the net change in Project activities listed in "d" and "e" above, it is estimated that the proposed alternative would generate less solid and liquid wastes than the existing Plan, and the demand upon utilities and their related natural resources would also be less from the "New-town-in-town."

The existing plan would generate significantly more traffic, particularly during evening peak period hours when the entertainment facilities are in use, thus contributing more to the noise and air pollution concentrations in the area. There is no way to compare the parking capacity of the two plans at this point, since the amount of parking for the alternative plan is not specified. Although public parking is prohibited, there is not a similar prohibition placed upon privately-owned and operated parking garages.

The residential acreage proposed in the initiative would provide needed additional housing units in the City for individuals and families of various economic means, and would provide the benefit to the existing housing in the South of Market of increasing the residential nature of the area. However, this entire area is generally not considered appropriate for residential uses due to the existing high level of traffic, air pollutant concentrations, and noise generated by vehicles passing along the area's major thoroughfares, mostly to and from the nearby freeways. It would be necessary to provide special landscaping, insulation and engineering and architectural techniques to adequately protect the housing from these environmental conditions.

The publicly-financed housing and the public open space would involve substantially lower initial construction costs than the proposed Central Blocks public facilities. However, a deficit of over $28 million would result in the local share account.[198]

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[198] Projects financed with general revenue sharing funds are not eligible to be used for local match.

Additionally, whereas, the public facilities will begin to generate direct and indirect revenues to the City -- and, most importantly, revenues imported from outside the regional base -- as they become operational, the public housing and park will generate no revenues, but will conversely require continuous City funding for ongoing maintenance and operation.

Both the market site housing and the net office space acreage in the existing plan would provide property tax revenues, but the latter would also offer employment opportunities which would not be provided by the alternative housing.

The alternative proposal is inconsistent with existing local zoning in the YBC area, and with the expressed intent of the local governing body for development of the area.

Adoption of the alternative would require several actions on the part of the Mayor and the Board of Supervisors including the submission of a major urban renewal plan change for HUD consideration; an amended zoning ordinance; and allocation of general revenue sharing, hotel tax and other local funds necessary for the planning of the area, development and maintenance of the low and moderate income housing and park, and for meeting the local share requirement.

As with the park proposal, this alternative provides certain benefits to the City. However, it does not satisfy many of the objectives of the current Plan. Again, adoption of this alternative would require a decision on the part of the local governing body that the objectives of the alternative were superior to those of the existing plan and merited the allocation of necessary local funds.

E. Reduce Parking

The amount and type of parking provided in any urban area have a direct effect upon automobile use and the related environmental impacts, including congestion, noise and air pollution. When parking is limited, the number of persons who can rely upon the automobile as their primary means of transportation to and from the CBD is similarly limited. When the cost of parking is sufficiently high more persons are discouraged from parking for long periods of time. This most directly affects the persons commuting to and from work who need to store their cars for a period of approximately eight hours daily, and who also contribute most heavily to the environmentally-stressed peak periods of traffic. Although the number of parking spaces proposed for the YBC represent a slight net reduction from the number currently operating in the Project area, the San Francisco downtown area -- including the South of Market -- is reaching, or in some cases has reached, the limit of acceptable noise and air pollution concentrations as measured by State and Federal standards. Thus, considering YBC's key location in relationship to all forms of public transit, there appears to be merit in considering whether or not parking could be reduced even further in order to effect a greater net improvement upon the existing environment.

The YBC project area as it currently exists contains approximately 3,700 low-cost off-street parking spaces and approximately 620 on-street parking spaces. The originally proposed plan of 1966 included a public parking garage of 5,000 spaces as well as the currently proposed private parking facilities. As the impact of this increased parking capacity became more apparent, the number of spaces in the public garage was reduced, and now stands at a total of 1,800 spaces. The spaces allocated for the private office buildings have remained constant in accordance with City zoning requirements. The parking configuration of the current plan is as follows:

181 - on-street spaces
1,800 - proposed public parking garage
316 - completed Fifth & Mission public garage (portion within Project)
600 - private apparel mart garage
1,203 - private office development
4,100 Total

The effect of reducing any or all of these is expected to have a minor positive impact upon the congestion, noise and air quality levels in the South of Market area. However, even deletion of all of the parking spaces would not constitute a major environmental impact, since the number of automobiles exiting the YBC parking facilities during peak periods would be only a small fraction of the total number of vehicles passing through the Project area and along the adjacent James Lick/Bayshore freeway at that time. However, it is expected that a reduction in available parking spaces would have the added positive impact of increasing mass transit business, which could be particularly significant for BART which has a substantial excess capacity. The benefits and disadvantages of reducing parking capacity vary with the type of parking facility under consideration:

On-street parking -- The number of proposed on-street parking spaces will be reduced by approximately 70% and will be metered and subject to peak hour tow-away regulations. These spaces are expected to service short-term parking only and would not contribute to peak period traffic. Users of these spaces are most likely to be brief visitors to any of the office buildings or shoppers visiting the retail establishments. The number of spaces involved is extremely small and is not likely to exacerbate any existing peak period environmental conditions.

Public garage -- It is City policy to maintain rates in the public parking garage at a level sufficiently high to discourage all-day use by commuters, thus reducing peak period stress. However, there would appear to be some doubt that the currently set price of $.35 per hour (in 1970 dollars -- approximately $.40 today) is sufficiently high to accomplish this purpose. The projected modal split for 1985 indicates that -- if street and parking capacities allowed -- there would be over 12,500 persons who would exit the Project area by automobile during the evening peak period. The planned parking spaces in the YBC area satisfy only one-third of this demand. Based upon the experience of other downtown garages charging comparable rates and upon the projected YBC parking market, it is expected that the public parking garage will contribute a substantial number of vehicles to the peak period traffic flow (approximately 1,000).

However, a reduction in the public parking spaces would mean an equivalent reduction in direct revenues to the City. Deletion of the parking facility would create a deficit in the local share account of approximately $18 million.[199]

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[199] Although the full credit for the garage is approximately $24 million, this total amount is not required to match outstanding federal grants.

In light of the revenues generated by the parking garage and the need to accommodate transient visitors to the Project's public facilities during off-peak hours, a review of the rate structure to further discourage commute traffic appears more warranted than reduction of the number of available spaces.

Apparel Mart Garage -- The 600-space apparel mart garage is intended to service transient clients of the mart and shoppers in the YBC area. In order to protect the business and viability of the wholesale and retail business in the area, it appears necessary to have adequate and convenient parking for clients. However, the garage's use for these purposes should be protected by a sufficiently high parking rate, perhaps combined with a validation procedure. As long as the garage is reserved for transient parkers only, the peak period environment will be improved.

Parking in Private Developments

The City Zoning Ordinace requires the inclusion of parking facilities in new developments, in accordance with the structure's usage and total square footage. In the case of office buildings this requirement appears to be in conflict with the City's expressed policy of discouraging all-day automobile commute traffic, since these spaces primarily serve the workers in those buildings. Adequate studies have not been prepared to confirm the impact upon the rentability of office buildings if parking were not provided. However, the excellent location of YBC in relationship to mass transit facilities and the comprehensiveness of the Bay Area transit services would appear to provide adequate forms of transportation to and from work for most Bay Area residents (with the exception of Peninsula residents, who currently have limited public transit alternatives) and thus adequate demand for the proposed office space.

It would appear that a reduction in the number of parking spaces in the private office buildings would serve to proportionately reduce peak period traffic and related environmental impacts and provide support to certain transit systems, without seriously threatening the objectives of the Project or the economic viability of the Project's facilities.

Summary

A combination of high hourly rate schedules and validation procedures in the Central Blocks area, with a reduction of the number of parking spaces in the private developments would appear to improve the environmental quality of the area, without undermining the intent and objectives of the existing Plan. Implementation of this alternative would require variances to the Zoning Ordinance by the City Planning Commission and further study into the potential economic impact upon the office buildings. Its success would be contingent upon a commitment on the part of the City to prevent the proliferation of replacement parking in the surrounding area.

VI. SUMMARY OF IMPACTS

VI. Summary of Impacts

Summarized here are the probable, and potential short- and long-term negative environmental impacts of the proposed Project; any irreversible and irretrievable commitment of resources which would be involved; and an explanation of impacts which would probably be avoided by one or more alternative proposals, or by other mitigating measures. However, in some instances, it is not possible to draw a comparison between certain proposed alternatives, since specific plans have not been developed for them.

The summary is organized parallel to Section IV, "Probable Environmental Impacts" to facilitate cross referencing. It is not intended as a self-sufficient document, since supporting data is contained in the body of the text.

A. Natural Features

A potential minor negative impact of the proposed Project is the planned removal of two neighborhood gardens. However, the completed Project area is planned to include approximately 11 acres of public plaza area with extensive landscaping. This, together with the Street trees and the landscaping requirements applied to the private developments will result in a substantial long-term increase of vegetation in the area.

B. Earth Sciences and Man-Made Systems

1. Geology

There is a slight potential for areal subsidence surrounding the Central Blocks area during dewatering of the site. To protect against such a possibility, the Agency will closely monitor the area through the use of observation wells and subsidence markers, and will take immediate corrective action should the need arise. Due to these precautionary measures, no short- or long-term negative impacts are anticipated as the result of the dewatering effort.

2. Seismology

San Francisco is in a seismically sensitive area, and, thus, the development of any new structures creates the potential for a negative impact resulting from earthquake damage. The potential of such a danger in the Central Blocks area has been reduced to a minimum through extensive dynamic analysis and resultant design techniques. Similar requirements have not yet been applied to private developers in the Peripheral Blocks area; however, these will be subject to the requirements of the Uniform Building Code and to strict regulation by the Bureau of Building Inspection.

The park alternative would remove the potential for any seismic danger in the Central Blocks area, since no major physical structures are proposed in that area under this alternative.

3. Liquid Domestic Wastes and Hydrology

A negative short-term impact of the planned YBC Project will result from a slight increase in the generation of liquid domestic wastes (approximately 2%-3% of the current flow to the North Point Plant) and in street pollutant run-offs) (in all instances, 0.3% or less) until such time as San Francisco upgrades its existing treatment facilities. The City has developed a plan for providing adequate city-wide treatment for all waste water flows by the early 1980's, and, thus, no long-term negative impact is anticipated.

It is anticipated that the park alternative would contribute significantly less waste to the sewage system than the currently planned project, and the new-town-in-town alternative would contribute only slightly less. Disapproval of the proposed Plan Changes would increase the amount of waste by a small fraction.

4. Solid Wastes

A minor negative short-term impact is expected during the construction phase from an increased demand upon the limited available disposal sites and from possible spillage along the haul routes contributing to the amount of street run-off pollutants.

The amount of construction debris would be substantially reduced by replacing the Central Blocks facilities with a park. It is likely that spillage would also be reduced somewhat, although grading and fill activities for the park would likely create a degree of spillage.

Efforts to minimize the impact of spillage include strict cleaning requirements imposed upon the contractors, and a recently accelerated City street cleaning program.

A minor long-term impact will be the generation of solid waste by the proposed Project, constituting approximately 2% of the City's total. Disapproval of the proposed Plan Changes would slightly increase the Project's total production of solid waste.

It is expected that the proposed alternative for a new-town-in-town would slightly reduce the generation of solid wastes from the planned area, and that the park alternative would do so to a more significant degree.

5. Utilities

The Project is not expected to have a negative impact upon the capability of the utility facilities, nor to threaten the supply of water available to the Region. However, it will increase San Francisco's consumption and demand for resources such as gas and electricity by approximately 0.4% and 6.4%, respectively. Due to the current uncertainty regarding the availability of these resources, it is difficult to project the significance of this impact.

The proposed Plan Changes and the new-town-in-town alternative would slightly decrease the amount of consumption in the Project area, and the proposed park would do so to a greater degree.

C. Land Use and Aesthetics

1. Land Use

Development of the proposal as planned would involve the irretrievable commitment of approximately 87 acres of land in the San Francisco downtown area, and would foreclose all options for alternative uses of the land for many years to come. However, the commitment of this land would not involve the loss of any significant natural or historic features, or any unique views or resources.

In general, the land use impacts of the proposed Project appear to be positive, by removing blight, directing growth along the main Market Street transit corridor, relieving the pressure for development in other areas, and increasing land values both directly, and indirectly in other parts of the city through such activities as increased hotel construction to accommodate additional tourists and convention delegates. The planned Project appears to be superior to all of the considered alternatives in achieving this combination of purposes.

Potentially less positive land use impacts of the proposed Project would include a net reduction in low-income housing units in the area, and pressure for the proliferation of parking lots in the South of Market area. The former impact could be considered as either a positive or negative impact, in that it reduces a generally undesirable concentration of low-income housing that is largely sub-standard, but also reduces the availability of low-income housing to residents of the area. The City has interpreted this as being mainly a negative impact, and has, thus, addressed the problem through the proposed Plan Change to provide an additional number of standard low-income units in the area. The potential for the proliferation of parking lots will be determined largely by City action. Current City policy speaks against the increase of parking spaces in the downtown area for commuter uses. However, the City also considers the South of Market area appropriate for transient parking uses, due to its proximity to the freeways. Whether or not proliferation of parking occurs will be dependent upon how the City balances these two objectives.

The new-town-in-town alternative would further increase the number of low-income and other residential resources in the area, and would not create as great a demand for transient parking; however, a great deal of private parking for the residents would be required. The park alternative would not provide additional housing resources, but would be likely to reduce the pressure for parking in the surrounding area to a certain degree. However, since the park would reduce the number of available spaces within the Project area by approximately 2,000, a certain amount of pressure on the surrounding area would continue to exist.

2. Urban Design

The Project design has mixed advantages and disadvantages, most of which are subject to interpretation by the viewer. The only potential negative design impact which might receive a consensus of agreement, is the excessive bulk and flat plane design of three buildings, the hotel, the south-block office building and the apparel mart.

The alternative of redesigning the hotel -- as well as the other two buildings -- would appear superior to the existing Plan, if proven economically feasible. The City is currently studying the possibility of mitigating this impact through redesign. Efforts have already been taken to mitigate the appearance of bulk and massiveness by undergrounding the parking garages and exhibit halls.

No comparison with other alternatives is possible since design plans have not been developed for the park, the new-town-in-town, or the office buildings to be replaced by the proposed Plan Changes.

3. Historic Places

Measures have been taken to preserve and enhance the only officially recognized historic structure in the Project area, St. Patrick's Church. Further efforts are being taken to preserve aesthetically or historically interesting structures which are feasible of rehabilitation. No negative impact is anticipated.

4. Archaeology

No evidence has yet been provided to indicate that there are archaeologically significant items in the Project area. However, the Agency is prepared to take appropriate action for preserving such items if found. No negative impact is anticipated.

5. Cultural Places

The project is expected to increase the amount of city-wide cultural opportunities. However, the loss of familiar social and cultural surroundings to the area's previous residents can be considered a limited negative impact. Efforts are being made to provide similar social amenities and facilities in the rehousing areas.

D. Social

1. Rehousing of Individuals and Families

A negative impact can be anticipated as the result of the psychological disruption generally associated with displacement from familiar surroundings. Mitigating measures include the proposed Plan Change for new housing in the area, and the construction and rehabilitation of approximately 1,500 low-cost standard units throughout the city. In most instances, residents will have superior housing at lower cost.

The major portion of relocation has already taken place (approximately 85% of the families and 67% of the individuals have been rehoused), and the number of available new and rehabilitated units is more than sufficient to accommodate the remaining caseload.

The new-town-in-town alternative, although also necessitating relocation, would also provide new rehousing resources on-site for Project area residents.

2. Relocation of Business Firms

It is expected that continued displacement of business firms from the YBC area will have a negative impact upon at least 28-37% of the firms who are likely to either discontinue business or experience a loss of personnel as a result of the displacement. A similar amount of business relocation would be necessitated by any of the considered alternatives.

None of the considered alternatives address the problem of business relocation.

E. Traffic, Noise, Air Quality

1. Traffic

Due to the slight net reduction in available parking spaces resulting from the proposed Project, it is not anticipated that the area will be able to accommodate any increase in peak period commuters, although the demand for additional spaces will be increased. As long as parking spaces continue to be limited, this increased commuter demand is likely to be shifted to the mass transit systems, thus supplying them with an economic boost through the increase in passenger business.

Long-term negative impacts are expected to result from the increase in daytime off-peak traffic and nighttime surge traffic from the Public Facilities. However, these increases are not expected to threaten the existing street capacity.

The proposed park and new-town-in-town alternatives would contribute less to the overall traffic volume in the area.

The proposed alternative to further reduce the number of parking spaces in the area, if economically feasible, would serve to reduce congestion, particularly during the peak periods, without seeming to undermine any of the Project's objectives. Efforts in this direction have already been taken by the City in reducing the proposed public parking garage from 5,000 to 1,800 spaces.

Short-term negative impacts will result from minor traffic disruption during the construction period. Efforts to mitigate this impact include the provision of queuing space for construction vehicles within the site, using tunneling rather than open ditches for the relocation of utilities, and limiting major street work to off-peak hours.

2. Noise

The overall traffic increase in the Project area, in conjunction with the canyon effect of the intense development, is expected to increase the noise level in the area by approximately 2 to 3 dB(A). This will exacerbate an already high noise level in the area.

The park alternative would reduce this impact by providing open space rather than buildings, and by generating and accommodating fewer automobiles. The new-town-in-town alternative would also be expected to slightly reduce the noise impact from traffic, although to a lesser degree than the park. However, the existing and projected noise levels in the area, even without any development in the Project area, are sufficiently high that park and residential uses would be adversely affected, according to Department of Transportation criteria L10; (park area -- not to exceed 50dB(A), L50, or 60dB(A), L50 or 70 dB(A), L10.).

The suggested alternatives of reducing the amount of private parking in the area and redesigning the hotel to reduce the canyon effect would both be expected to mitigate this impact somewhat, without conflicting with the Project's larger objectives. However, none of the alternatives would be likely to be able to reduce the noise level to within desirable standards.

The proposed low-income housing will be adversely affected by the existing and projected noise levels in the area, unless fairly costly techniques and materials are used to attenuate the interior noise.

A substantial negative short-term noise impact will occur during the construction phase, and, most particularly, during the early excavation and construction of the Central Blocks area. The City has recently passed a noise ordinance which will require muffling devices and reduced noise emissions from construction vehicles, and prohibits construction during the hours of 8 PM to 7 AM unless a special permit is granted. The degree to which this ordinance is strictly enforced will determine the degree to which it will serve to mitigate the construction noise impact.

The park alternative is the only one considered which would be expected to substantially reduce the excessive noise emissions during the short-term construction period. The magnitude of this reduction would depend upon the amount of grading, fill and other development activities required in any eventual park plan.

3. Air Quality

YBC is not expected to significantly increase the air pollution in the South of Market area. The air quality in the area is generally acceptable; however, in worst case conditions there is a potential that the hydrocarbon, nitrous oxide and particulate standards could be exceeded, although such instances would be infrequent.

To the extent that they reduce traffic volume, the proposed alternatives of a park and a new-town-in-town would be expected to also produce less air pollutants than the proposed Plan, thus decreasing the potential of exceeding the air quality standards.

The proposed reduction in the number of private parking spaces and a reduction of the canyon effect through redesign of three of the Central Blocks structures would also likely reduce the negative air quality impact, without threatening the basic objectives of the current plan.

As discussed above, a reduction of approximately 3,200 parking spaces from that originally proposed has already been effected in an effort to mitigate the Project's air quality impacts.

A short-term negative impact is expected during the construction phase. Gaseous emissions from construction vehicles and asphalt pouring and the particulate content of the air during excavation activities are expected to increase during this period. The gaseous emissions are not expected to exceed acceptable standards; however, it is likely that the particulate level will exceed the 24-hour State standards.

There do not appear to be adequate techniques for bringing the particulate level below the standard in any major construction project. The park alternative would be expected to alleviate this short-term impact to a large extent, depending upon the amount of grading and fill required or proposed for the development of this alternative.

F. Economics

The proposed YBC project will involve the commitment of substantial fiscal resources to finance the construction of the proposed public facilities and the early amortization of the bonds. However, it is anticipated that the direct and indirect activities generated by the Project will return this early investment and pay for itself over the long-term. The park and new-town-in-town alternatives would involve a significantly smaller but still substantial initial investment, but are not expected to have the revenue producing capacity of the currently proposed Project, particularly with regard to attracting an infusion of revenues from outside the Regional base.

Substantial investments in construction materials will be required for the completion of this project. This is expected to have a positive short-term impact of increasing employment and personal income in construction-related industries. The new-town-in-town alternative would be expected to have a similar although slightly smaller impact upon materials and employment.

Long-term employment opportunities would be greatest in the currently proposed Project, but would also be provided to a slightly lesser extent by the park and new-town-in-town alternatives as currently proposed.

A main objective of the Project is to improve San Francisco economic base by attracting income to the area from outside the Bay Region, to replace the area's dwindling manufacturing industry. The projected ability of the new convention center to attract and accommodate additional national conventions is expected to achieve this purpose. The planned Project would be superior to the proposed park and new-town-in-town alternatives in this regard.

G. Conclusions

The currently proposed YBC Project is expected to provide benefits to the City of removing blight, putting the land to productive use, increasing cultural opportunities within the City, and providing an infusion of extra-regional funds into the area. However, the potential negative environmental impacts of the proposed Plan, although not appearing to be unusually severe for an urban project planned in a highly developed Central Business District, can in many instances be slightly or substantially reduced by one or more of the considered alternatives.

In the discussion of alternatives, it is stated that redesign of the hotel, protective design for the proposed low-income housing units, and reduced private parking spaces are considered to be environmentally superior to the Project as currently planned, without sacrificing the economic and cultural objectives of the Project. It is recommended that these alternatives be adopted.

The park and new-town-in-town alternatives would constitute a totally new direction for a Project that is already well underway and would sacrifice many of the cultural and economic objectives of the currently planned Project. Although negative environmental impacts would be reduced in many instances by these two alternatives, these reductions do not appear to outweigh the benefits of the proposed Project which would be either totally or partially lost.

These benefits include:

- the extensive cultural facilities and entertainment opportunities;
- the infusion of extra-regional funds into San Francisco's economic base;
- the substantial increase in employment and personal income; and
- the planned development of and direction of the Central Business District toward the South of Market area, along the Market Street transit corridor.

In addition, implementation of these two alternatives would entail a significant added cost to the City in that (1) a substantial financial investment in design plans for the public facilities (approximately $8 million) would be lost and additional investment would be required to finance new plans; (2) a portion of the required local matching share for San Francisco urban renewal projects (approximately $28 million) would be lost and would have to be provided through other sources; and (3) there would be a possibility of incurring legal suits by already designated developers who have proceeded in good faith on the basis of the existing Plan.

In the weighing of the benefits versus the costs, the park and new town-in-town alternatives are not recommended.

The "no project" or "minimum action" alternative is expected to be inferior than the currently planned Project in both economic and environmental terms and is, therefore, not recommended.

In addition to the considered alternatives, additional mitigating measures have been suggested throughout this text, beyond those extensive efforts already taken by the City and the Redevelopment Agency.

It is the proposed position of HUD to insure that these mitigating measures and three recommended alternatives to the existing Plan be guaranteed prior to approval of the requested Plan changes. Final action and determination in this regard will be made subject to comments received from other agencies, organizations and citizens and will be published in the Final Environmental Impact Statement.

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APPENDIX A

YERBA BUENA CENTER
PROJECT BOUNDARIES

Beginning at the intersection of the most northeasterly line of Third Street with the most northwesterly line of Jessie Street; running thence northeasterly along said northwesterly line of Jessie Street 285.00 feet more or less to the intersection of said northwesterly line with the most northeasterly line of Annie Street; said northeasterly line being the northerly projection of said line as Annie Street now exists south of Jessie Street; thence southeasterly along said northeasterly line 86.00 feet more or less; thence at right angles southwesterly 30.00 feet more or less to a point on the southwesterly line of Annie Street; said point also being the most easterly corner of Lot 32 of Assessor's Block 3707 and the most northerly corner of Lot 21 of said Block 3707; running thence southwesterly along the property line of said Lots 32 and 21 32.45 feet more or less to a point; said point also being the most southerly corner of said Lot 32; thence southeasterly 1.00 foot more or less along the property line of Lots 21 and 32 of Assessor's Block 3707; thence southwesterly 23.542 feet more or less to the most westerly corner of Lot 21 of said Block 3707; thence southeasterly 119.00 feet more or less along the southwesterly property line of said Lot 21 to a point on the northwesterly line of Mission Street; thence northeasterly along said northwesterly line 7.25 feet more or less; thence at right angles southeasterly 82.50 feet more or less to a point on the southeasterly line of Mission Street; said point also being the most northerly corner of Lot 66 and the most westerly corner of Lot 67 of Assessor's Block 3722; thence continuing southeasterly along the property line of said Lots 66 and 67 160.00 feet more or less to a point on the northwesterly line of Minna Street; thence northeasterly along said northwesterly line of Minna Street 68.75 feet more or less to a point on said northwesterly line; said point also being the most easterly corner of Lot 67 and the most southerly croner of Lot 68 of Assessor's Block 3722; thence at right angles southeasterly 35.00 feet more or less to a point on the southeasterly line of Minna Street; said point also being the most northerly corner of Lot 54 and the most westerly corner of Lot 56 of Assessor's Block 3722; thence continuing southeasterly 300.00 feet more or less along the northeasterly property lines of Lot 54, the northeasterly terminus of Massett Place, Lot 45, the northeasterly terminus of Hunt Street, and Lot 27, all being a part of Assessor's Block 3722; thence southwesterly 18.00 feet more or less along the property line of Lots 27 and 26 of said Block 3722; thence southeasterly 55.00 feet more or less along the property line of said Lots 27 and 26 to a point on the northwesterly line of Howard Street; thence continuing southeasterly 82.50 feet more or less to a point on the southeasterly line of Howard Street; thence southwesterly along said southeasterly line of Howard Street 52.00 feet more or less to a point on said southeasterly line, said point also being the most northerly corner of Lot 38 and the most westerly corner of Lot 39 of Assessor's Block 3735; thence southeasterly 160.00 feet more or less along the northeasterly property lines of Lots 38 and 31 of said Block 3735 to a point on the northwesterly line of Tehama Street; thence northeasterly along said northwesterly line of Tehama Street 70.00 feet more or less to the northeasterly terminus of Tehama Street; thence southeasterly along said northeasterly terminus 35.00 feet more or less to a point on the southeasterly line of Tehama Street; said point also being the most westerly corner of Lot 17 and the most southerly corner of Lot 41 of Assessor's Block 3735; Thence northeasterly 112.50 feet more or less along the property line of said Lots 17 and 41 to a point on the southwesterly line of Hawthorne Street; thence northwesterly along said southwesterly line of Hawthorne Street 34.583 feet more or less; thence at right angles northeasterly 50.00 feet more or less to a point on the northeasterly line of Hawthorne Street; said point also being the most westerly corner of Lot 46 and the most southerly line of Lot 47 of Assessor's Block 3735; thence continuing northeasterly along the property line of said Lots 46 and 47 112.50 feet more or less to a point, said point also being the most easterly corner of said Lot 47; thence southeasterly along the property line of Lots 46 and 5 of Assessor's Block 3735 4.583 feet more or less; said point also being the most southerly corner of said Lot 5; thence northeasterly along the property line of said Lot 5 140.00 feet more or less to a point on the northwesterly line of Tehama Street; thence continuing along said northwesterly line of Tehama Street 217.50 feet more or less to the intersection of said northwesterly line with the northeasterly line of

Second Street; thence southeasterly along said northeasterly line of Second Street 467.50 feet more or less to the intersection of said northeasterly line with the most southeasterly line of Folsom Street; thence southwesterly along said southeasterly line of Folsom Street 470.00 feet more or less to the intersection of said southeasterly line with the intersection of the northeasterly line of Hawthorne Street; thence southeasterly along said northeasterly line of Hawthorne Street 632.50 feet more or less to a point on the southeasterly line of Harrison Street, thence southwesterly along said southeasterly line of Harrison Street 37.50 feet more or less to the most northerly corner of Lot 101 and the most westerly corner of Lot 105 of Assessor's Block 3763; thence southeasterly along the property line of said Lots 101 and 105 200.00 feet more or less to a point on the southeasterly line of Perry Street; thence southwesterly along said southeasterly line of Perry Street 482.50 feet more or less to a point on the southwesterly line of Third Street; thence northwesterly along said southwesterly line of Third Street 200.00 feet more or less to the intersection of said southwesterly line with the southeasterly line of Harrison Street; thence southwesterly along said southeasterly line of Harrison Street 987.50 feet more or less to a point on said southeasterly line; thence at right angles northwesterly across Harrison Street and along the property line between Lots 11, 11a and Lot 12 of Assessor's Block 3752 242.50 feet more or less to a point on the southeasterly line of Clara Street; thence southwesterly along said southeasterly line of Clara Street 145.00 feet more or less to a point on said southeasterly line; thence at right angles northwesterly across Clara Street and along the property line of Lots 6 and 38 of Assessor's Block 3752 115.00 feet more or less to a point, said point being the most westerly corner of said Lot 38; thence northeasterly along the property line of said Lot 38 60.00 feet more or less to the most easterly corner of Lot 7 of said Block 3752; thence northwesterly along the property line of Lots 7 and 8 of said Block 3752 and the northwesterly projection thereof 110.00 feet more or less to a point on the **northwesterly line** of Shipley Street; thence **northeasterly** along said northwesterly line of Shipley Street 90.00 feet more or less to the most southerly corner of Lot 3 of Assessor's Block 3752; thence **northwesterly along the property line between Lots 1, 2, 3 and Lot 94 of said Block 3752** 165.00 feet more or less to a point on the southeasterly line of Folsom Street; thence southwesterly along said southeasterly line of Folsom Street 30.00 feet more or less to a point on the said southeasterly line, said point being the southeasterly projection of the property line between Lots 13 and 14 of Assessor's Block 3733; thence at right angles northwesterly across Folsom Street and continuing along the property line of said Lots 13 and 14 162.50 feet more or less to the common corner of Lots 13, 14, 42 and 43 of said Block 3733;thence southwesterly along the property line between Lots 14, 16 and Lots 37, 38, 39, 41, 41a and 42 170.00 feet more or less to the most southerly corner of Lot 37 of said Block 3733; thence northwesterly along the property line between Lots 37 and 17 of said Block 3733 80.00 feet more or less to a point on the southeasterly line of Clementina Street; thence southwesterly along said southeasterly line of Clementina Street 175.00 feet more or less to a point on said southeasterly line, said point also being the southeasterly projection of the property line between Lots 53 and 54 of Assessor's Block 3733; thence northwesterly across Clementina Street and continuing along said property line of Lots 53 and 54 and continuing along the property lines of Lots 60a and 61 of said Block 3733 and the northwesterly projection thereof 235.00 feet more or less to a point on the northwesterly line of Tehama Street; thence northeasterly along said northwesterly line of Tehama Street 175.00 feet more less to a point on said northwesterly line; said point also being the most southerly corner of Lot 76 and the most easterly corner of Lot 84 of Assessor's Block 3733; thence northwesterly along the property line of said Lot 76 and 84 and the northwesterly projection thereof 237.50 feet more or less to a point on the northwesterly line of Howard Street; thence northeasterly along said northwesterly line of Howard Street 75.00 feet more or less to the intersection of said northwesterly line with the southwesterly line of Holland Court; thence northwesterly along said southwesterly line 275.00 feet more or less to the intersection of said southwesterly line with the northwesterly line of Holland Court; thence northeasterly along said northwesterly line 50.00 feet more or less to the most southerly corner of Lot 43 of Assessor's Block 3724; said point also being the most easterly corner of Lot 16 of said Block 3724; thence northwesterly 357.50 feet more or less along the property line between said Lot 43 and 16 across Minna Street and continuing along the property line between Lot 63 and 64 of Block 3724 to a point on the northwesterly line of Mission Street; thence northeasterly along said northwesterly line 75.00 feet more or less to a point on said northwesterly line, said point being the most southerly corner of Lot 6 and the most easterly corner of Lot 7 of Assessor's Block 3705; thence northwesterly 200.00 feet more or less along the property line between Lots 5, 6 and Lot 7 of said Block 3705 to a point on the northwesterly line of Jessie Street; thence along said northwesterly line 157.50 feet to a point on the northeasterly line of Fourth Street; thence southeasterly along said northeasterly line 10.00 feet to the point of intersection of said northeasterly line with the northwesterly line of Jessie Street; thence along said northwesterly line 275.00 feet more or less; thence northwesterly 5.00 feet more or less; thence northeasterly along said northwesterly line 30.00 feet more or less to a point on the said northwesterly line, said point being the most southerly corner of Lot 26 and the most easterly corner of Lot 28 of Assessor's Block 3706; thence northwesterly 80.00 feet more or less to the most westerly corner of said Lot 26; thence northeasterly along the property line of said Lot 26 5.00 feet more or less to the most southerly corner of Lot 32 of said Block 3706; thence northwesterly along the property line of said Lot 32 70.00 feet more or less to a point on the southeasterly line of Stevenson Street, said point being the most westerly corner of said Lot 32 and the most northerly corner of Lot 28 of said Block 3706; thence southwesterly along said southeasterly line of Stevenson Street 160.00 feet more or less to a point on said southeasterly line, said point being on a line with the southeasterly projection of the property line between Lots 46 and 48 of said Block 3706; thence northwesterly across Stevenson Street and along said property line of Lots 46 and 48 205.00 feet more or less to a point on the southeasterly line of Market

Street, said point also being the most westerly corner of said Lot 46 and the most northerly corner of said Lot 48; thence northeasterly along said southeasterly line 350.00 feet more or less to a point on said southeasterly line, said point also being the most westerly corner of Lot 61 and the most northerly corner of Lot 60 of said Block 3706; thence southeasterly 100.00 feet more or less along the property line between Lots 60 and 61 to the most easterly corner of said Lot 60; thence southwesterly 10.00 feet more or less along the property line between said Lots 60 and 61 to a point, said point also being the corner of Lots 59 and 61 of said Block 3706; thence southeasterly 70.00 feet more or less along the property line between said Lots 59 and 61 to a point on the northwesterly line of Stevenson Street; thence along said northwesterly line 417.50 feet more or less to the intersection of said northwesterly line with the northeasterly line of Third Street; thence southeasterly along said northeasterly line 174.00 feet more or less to the point of beginning.

APPENDIX B

URBAN RENEWAL PLAN, 1966
ORIGINAL STANDARDS FOR DEVELOPMENT

TABLE I
STANDARDS FOR DEVELOPMENT
REDEVELOPMENT PLAN FOR THE YERBA BUENA CENTER APPROVED REDEVELOPMENT PROJECT AREA D-1

LAND USE DISTRICT Land Use District designations refer to Land Use Plan A (Map 2) and Land Use Plan B (Map 3)	PERMITTED USES (1) (2)	MAXIMUM FLOOR AREA RATIO	MAXIMUM & MINIMUM HEIGHT (3) (4)	MAXIMUM COVERAGE	MINIMUM SETBACKS	OFF-STREET PARKING SPACES	OFF-STREET LOADING BERTHS
DISTRICT No. 1 **OFFICE AND RETAIL**	Business and professional offices, retail stores, personal service establishments, restaurants, clubs, theaters, meeting halls, churches, institutional and recreational buildings, off-street parking within a building.	16:1	Maximum: [illegible]5 stories Minimum: [illegible]	Below 40 feet: 100% Above 40 feet: 70%	Above 40 feet: 25 feet from interior lot lines.	None	For [illegible] 10,000 square feet of gross floor area in building, not less than one space, plus one space for each additional 10,000 square feet or major fraction thereof.
DISTRICT No. 2 **SPECIAL USE**	Business and professional offices, retail stores, personal service establishments, restaurants, clubs, theaters, meeting halls, churches, institutional and recreational buildings, off-street parking within a building	9:1 FOR TOTAL AREA	Maximum: 30 stories Minimum	Below Plaza Level: 100% Above Plaza Level: 50% of total district excluding area covered by Sports Arena.	None	None	
DISTRICT No. 3 **TRANSITIONAL COMMERCIAL**	Business and professional offices, retail stores, personal service establishments, restaurants, clubs, theaters, meeting halls, churches, institutional and recreational buildings, laboratories, and wholesale establishments not including warehouses, off-street parking within a building.	9:1 FOR TOTAL AREA	Maximum: [illegible] stories Minimum: None	Below 40 feet: 100% Above 40 feet: [illegible]%	Above [illegible] feet: [illegible] feet from interior lot lines.	None	
DISTRICT No. 4 **BUSINESS SERVICE AND LIGHT INDUSTRY**	Business and professional offices, retail stores, personal service establishments, restaurants, laboratories, wholesale establishments, warehouses, storage buildings, automobile sales establishments within a building, repair garages, automobile service stations, repair shops, printers, light industrial uses involving only assembly, packaging, repairing, or processing of previously prepared materials, public utility installations, off-street parking.	5:1	Maximum: 10 stories Minimum: None	100%	None	For business & professional offices, 1 space for each 500 sq.ft. of gross floor area; for retail stores & personal service establishments, 1 space for each 500 sq.ft. of gross floor area up to 20,000 sq.ft. plus 1 space for additional 250 sq.ft.; for other uses, 1 space for each 1,000 sq.ft. of gross floor area.	
DISTRICT No. 5 **INSTITUTIONAL HOUSING**	Institutions providing sleeping or dwelling units, public housing, and off-street parking.	9:1	Maximum: 15 stories Minimum: None	Below 30 feet: 70% Above 30 feet: 30%	Above 30 feet: 30 feet from all lot lines.	None	
DISTRICT No. 6 **INSTITUTION**	Public buildings, churches, labor unions, and welfare and other types of institutions, including institutions with sleeping or dwelling units, off-street parking.	5:1	Maximum: 10 stories Minimum: None	100%	None	None	
DISTRICT No. 7 **PARKING FACILITIES**	Parking facilities. (5)	NONE	Maximum: 50 feet Minimum: None	100%	None	Not Applicable	

(1) Necessary public utility facilities may be located in any use district, subject to approval of the Agency.

(2) Existing properties designated for retention may be continued in their existing use.

(3) Maximum height limits shall not apply to the following features of the building, provided they do not occupy more than 10 percent of the maximum area covered by the building, penthouses, fire towers, chimneys, water tanks, flag poles, radio and television antennas, and necessary mechanical appurtenances. Minimum height regulations shall apply to an area not less than 20 percent of the lot area.

(4) Building heights shall be measured from ground level.

(5) In the event that adequate substitute parking facilities are provided, other uses may be permitted in District 7 as follows:

- (a) In the area between Mission and Howard Streets, those uses permitted in District 2.
- (b) In the area between Howard and Folsom Streets, those uses permitted in District 3.
- (c) In the area between Folsom and the southerly project boundary, those uses [illegible]

S.F.R.A.
August 12, 1964 [illegible] 7/20/65 & 12/28/6[illegible]

APPENDIX C

URBAN RENEWAL PLAN
PLAN CHANGE I

PROPOSED AMENDMENTS TO THE REDEVELOPMENT PLAN FOR THE YERBA BUENA CENTER APPROVED REDEVELOPMENT PROJECT AREA D-1

1. Delete any and all references to Land Use Plan B, and amend any and all references to Map 2: Land Use Plan A throughout the text to read, The Land Use Plan.

2. Amend Map 2: Land Use Plan A to conform to the map which appears on Page 6 of this Exhibit.

3. Amend the table, STANDARDS FOR DEVELOPMENT, to read as follows:

Land Use District	Permitted Principal Use (1,2,3,4,7,8,9)	Maximum Floor Area Ratio (5,6)
A	Business and professional offices; retail stores; personal services establishments; restaurants; clubs; theaters; meeting halls; churches; institutional and recreational buildings; offstreet parking structures.	14:1
B	Same as District A	10:1
C	Same as District A plus laboratories and wholesale establishments not including warehouses; except that in blocks designated for Special Use permitted uses include only those allowed in District A plus exhibit hall; sports arena; hotel providing accomodations for transient guests; and radio and television studios.	7:1
D	Housing specifically designed for occupancy by mature adults including offstreet parking and supporting recreational and other facilities.	7:1
E	Same as District A plus laboratories; wholesale establishments; printers; radio and television studios; building services and repairs; storage buildings; and light industries involving only assembly, packaging, repair or processing of previously prepared materials.	5:1

(1) It is intended that retailing and consumer services shall be the predominant ground floor use along major street frontages in District B.

(2) Where operating requirements necessitate location within the dictrict, utility installations or public service facilities may be located in any use district, subject to approval of the Agency.

(3) A facility for transit and related uses may be located in any block designated for Special Use.

(4) District D uses may be developed as alternate uses on Lot 38, Block 3752.

(5) Maximum height shall be governed by floor area ratio (bulk) limitations and by Design Guidelines for Yerba Buena Center formulated by the Redevelopment Agency.

(6) In Districts A, B and C development bonuses specified in the following table, where applicable, may be added to the basic floor area ratio limit to determine the maximum floor area ratio for a building or development.

Each separate bonus shall be credited where it applies; except that features 1 and 2 shall be mutually exclusive, and features 8 and 9 shall also be mutually exclusive.

QUANTITY OF BONUS FLOOR AREA
FOR EACH BUILDING FEATURE PROVIDED

Building Feature	Unit Of Feature Upon Which Bonus Is Based	Square Feet of Bonus Floor Area Per Unit of Feature			Maximum For This Bonus (Per Cent of Basic Allowable Gross Floor Area)
		District A	District B	District C	
1. Rapid Transit Access Larger of these two bonuses applies	Provision of direct access to station mezzanine	20% of basic allowable gross floor area (1/3 less if station is for city transit only)			20
2. Rapid Transit Proximity	Each linear foot by which walking distance to station mezzanine is less than 750 feet	50 (1/3 less if station is for city transit only)	40	40	10
3. Parking Access	Each automobile parking space to which direct access is provided	100	100	100	5
4. Multiple Building Entrance	Each major entrance to the building after the first such entrance	10,000	10,000	5,000	5 (or one entrance, whichever is greater)
5. Sidewalk Widening	Each creditable square foot of sidewalk widening area	7	7	4	15
6. Shortening Walking Distance	Each linear foot by which walking distance between streets or alleys is shortened	40	40	30	10
7. Plaza	Each creditable square foot of plaza area	10	8	6	15
8. Side Setback	Each creditable square foot of side setback area	6	6	3	15
9. Low Coverage at Upper Floors Larger of these two bonuses applies	Reduction of both building dimensions by 20% or more of the lot dimensions.	5% of basic allowable gross floor area for the first 20% reduction of building dimensions; 1% for each 3% reduction thereafter			15
10. Observation Deck	Provision of observation deck or similar high-level public space	10,000	10,000	10,000	Not Applicable

In District E the following premiums, where applicable may be added to the basic floor area ratio limit to determine the maximum floor area ratio for a building or development.

(a) For a lot or portion thereof which is a cornerlot, a floor area premium may be added by increasing the area of the lot or portion for purposes of floor area ratio computation, by twenty-five percent.

(b) For an interior lot, or portion thereof, which abuts along its rear lot line upon an alley or street, a floor area premium may be added by increasing the depth of the lot or portion along such alley or street, for purposes of floor area ratio computation, by one-half the width of such alley or street or ten feet, whichever is the lesser.

(7) In recognition of programs for providing public offstreet parking in excess of offstreet parking demand in Districts A, B and C, offstreet parking in these Districts shall be located in parking facilities in blocks designated for Special Use or in the portions of these Districts specifically designated for parking in the Land Use Plan.

Offstreet parking shall be provided in District E as follows:

Use or activity	Number of offstreet spaces required
Medical or dental office or clinic	One for each 300 square feet of occupied floor area, where the occupied floor area exceeds 5,000 square feet.
Other business office	One for each 500 square feet of occupied floor area, where the occupied floor area exceeds 5,000 square feet.
Retail space devoted to the handling of furniture or other bulky merchandise	One for each 1,000 square feet of occupied floor area, where the occupied floor area exceeds 5,000 square feet.
Other retail space	One for each 500 square feet of occupied floor area up to 20,000 square feet where the occupied floor area exceeds 5,000 square feet, plus one for each 250 square feet of occupied floor area in excess of 20,000.
Restaurant, night club, or other similar enterprise	One for each 200 square feet of occupied floor area, where the occupied floor area exceeds 5,000 square feet.
Theater or auditorium	One for each 8 seats up to 1,000 seats where the number of seats exceeds 50, plus one for each 10 seats in excess of 1,000.
Church	One for each 10 seats by which the number of seats in the main auditorium exceeds 100.

Service, repair or wholesale sales space	One for each 1,000 square feet of occupied floor space, where the occupied floor area exceeds 5,000 square feet.
Storage or warehouse space	One for each 2,000 square feet of occupied floor area, where the occupied floor area exceeds 10,000 square feet.
Other manufacturing and industiral uses	One for each 1,500 square feet of occupied floor area where the occupied floor area exceeds 7,500 square feet.

In instances in which the Redevelopment Agency, and other public agencies involved, have certified by resolution that requirements of offstreet parking spaces will be satisfied in whole or in part by public offstreet parking facilities constructed or authorized to be constructed within the Yerba Buena Center Redevelopment Project Area or upon any other applicable basis, offstreet parking required for individual buildings and uses in District E may be correspondingly reduced if the total offstreet parking supply in the area will nevertheless meet the requirements of the schedule of required offstreet parking for all buildings and uses in the area.

(8) Offstreet loading spaces shall be provided as follows:

OFF-STREET FREIGHT LOADING SPACES REQUIRED

Use or Activity	Gross Floor Area of Building or Use (Sq. Ft.)	Number of Off-Street Freight Loading Spaces Required
Retail stores, wholesaling, manufacturing, and all other uses primarily engaged in the handling of goods.	0- 10,000	0
	10,001- 60,000	1
	60,001-100,000	2
	over 100,000	3 plus 1 for each additional 80,000 sq. ft.
Offices, hotels, and all other uses not included above.	0-100,000	0
	100,001-200,000	1
	200,001-500,000	2
	over 500,000	3 plus 1 for each additional 400,000 sq. ft.

(9) Existing properties designated as eligible for retention and rehabilitation may be continued in their existing uses, subject to compliance with Owner Participation Rules and Regulations promulgated by the Agency, including standards for rehabilitation.

APPENDIX D

URBAN RENEWAL PLAN
PLAN CHANGE II

PROPOSED AMENDMENTS TO THE REDEVELOPMENT PLAN FOR THE YERBA BUENA CENTER APPROVED REDEVELOPMENT PROJECT AREA D-1 (PLAN CHANGE NO. 2)

1. To add subparagraph 11 to Article I, Section C, such subparagraph to read as follows:

   II. Payment for site acquisition and the installation and construction of certain Public Facilities comprising demolition, mass excavation and bulkheading, parking structure including rough slab exhibition hall floor, and exhibition hall foundations, together with structures to accommodate streets and utilities together with reimbursement for certain City preliminary work consisting of the relocation and extension of utilities; hall service areas, common public areas, miscellaneous structures, extension of utilities, a central heating and cooling plant, and utility distribution systems; a sports arena complex including fixed seating, extension of utilities, completion of certain common public areas and attendant structures, restoration of streets, and furnishings and fixtures, together with all other works, property or structures necessary for a community center for public assembly and convention purposes.

2. To add the following paragraph to the end of Article IV, Section C, such paragraph to read as follows:

TAX ALLOCATION FINANCING

The Agency may, from time to time, issue bonds, notes, interim certificates, debentures or enter into other contractual obligations for any of its corporate purposes authorized by law. The Agency may also issue refunding bonds for the purpose of paying or retiring bonds previously issued by it.

Taxes, if any, levied upon the taxable property in the Yerba Buena Center Approved Redevelopment Project Area D-1 each year by or for the benefit of the State of California, City and County of San Francisco, any district, or other public corporation, after the effective date of the ordinance approved this Plan shall be divided as provided in Article 6, Chapter 6, Part I (the Community Redevelopment Law) of the Health and Safety Code of the State of California and Section 19 of Article XIII of the Constitution of the State of California, to wit:
(a) That portion of the taxes which would be produced by the rate upon which the tax is levied each year by or for each of said taxing agencies upon the total sum of the assessed value of the taxable property in the redevelopment project as shown upon the assessment roll used in connection with the taxation of such property by such taxing agency, last equalized prior

to the effective date of such ordinance (to wit, the assessment roll for the fiscal year 1965-1966), shall be allocated to, and when collected shall be paid into, the funds of the respective taxing agencies as taxes by or for said taxing agencies on all other property are paid (for the purpose of allocating taxes levied by or for any taxing agency or agencies which did not include the territory in a redevelopment project on the effective date of such ordinance but to which such territory has been annexec or otherwise included after such effective date, the assessment roll of the county last equalized on the effective date of the ordinance shall be used in determining the assessed valuation of the taxable property in the project on said effective date); and
(b) That portion of said levied taxes each year in excess of such amount shall be allocated to and when collected shall be paid into a special fund of the redevelopment agency to pay the principal of and interest on loans, moneys advanced to, or indebtedness (whether funded, refunded, assumed or otherwise) incurred by such redevelopment agency to finance or refinance, in whole or in part, such redevelopment project. Unless and until the total assessed valuation of the taxable property in a redevelopment project exceeds the total assessed value of the taxable property in such project as shown by the last equalized assessment roll referred to in subparagraph designated (a) hereof, all of the taxes levied and collected upon the taxable property in such redevelopment project shall be paid into the funds of the respective taxing agencies. When said loans, advances, and indebtedness, if any, and interest thereon, have been paid, then all moneys thereafter received from taxes upon the taxable property in such redevelopment project shall be paid into the funds of the respective taxing agencies as taxes on all other property are paid.

In the proceedings for the advance of moneys, or making of loans, or the incurring of any indebtedness (whether funded, refunded, assumed or otherwise) by the Agency to finance or refinance, in whole or in part, the Yerba Buena Center Approved Redevelopment Project, the portion of taxes mentioned in subparagraph (b) hereof may be irrevocably pledged for the payment of the principal of and interest on such loans, advances, or indebtedness.

3. To Amend Map 2: Land Use Plan as follows:

   a. Lots 37, 38, 39, 40, 41A, 42, and 43 in Block 3733 and lots 37, 38, 39, 40, 42, 43, 44, 45, 46, and 77 in Block 3751 are reclassified from District E, Business Services and Light Industry, to District D, Housing.

   b. Lots 1, 6, 7, 72, 89 and 90 in Block 3733 are reclassified from District C, Downtown Support to District D, Housing.

4. To amend the first paragraph of Subsection C of Section II, Project Plan by adding two footnotes to the list, Permitted Principal Use, as follows:

   a. "(10) District D uses may be developed on Lots 1, 6, 7, 72, 89 and 90 of Block 3733 only if these lots are also developed and used for commercial uses."

   b. "(11) After vacation, streets, or portions of streets, shall be classified for the same uses as the lots bordering them."

APPENDIX E

YERBA BUENA CENTER
SUMMARY OF LITIGATION

SUMMARY OF LITIGATION
INVOLVING THE YERBA BUENA CENTER PROJECT

TOOR vs. Romney et al., U.S.D.C., N.D., California, Civil Action #C-69-324 SAW. This was a class action brought in 1969 by prospective relocatees in the urban renewal project area to invalidate the project's Redevelopment Plan, enjoin Federal financial assistance and restrain land acquisition and demolition. The Complaint stated five causes of action--alleging that (1) there was a lack of feasible Relocation Plan and an arbitrary determination of the sufficiency of relocation assurances pursuant to 105(c)(2); (2) there were improprieties in the procedural requirements respecting the notice of hearing on the plan; (3) there was a failure to submit a Report for consideration in the approval process; (4) there was a violation of 106(g) of the Act; and (5) there was a denial of equal protection of law.

Upon review, the U.S. District Court found that the Secretary's finding with respect to the adequacy of the "assurance" under Section 105(c)(2) was arbitrarily made and not supported by the evidence of the case. The court therefore issued a Preliminary Injunction on April 30, 1970, restraining HUD from further financing and enjoining the local defendants from undertaking relocation or acquisition activities. A subsequent Relocation Plan was approved by HUD but never ruled upon by the court because the LPA and the plaintiffs stipulated to a "Consent Order" which resulted in a dissolution of the injunction. Some features of the "Consent Order" were the establishment of an Arbitration Board and the promise by the LPA to construct 1500-1800 units of low-rent housing within a three year period.

Subsequent to this "Consent Order" there were other attempts by the plaintiffs to have the project halted again. In 1972 HUD, of its own volition, initiated a thorough investigation of the project's relocation problems. Based upon that report, HUD placed some restrictions upon the LPA's activities and required a new updating of the Relocation Plan.

In October 1972, HUD approved a revised Relocation Plan and so certified to the court. Plaintiffs again contested the validity of the Relocation Plan. The court remanded the matter back to HUD to supplement the administrative record on certain matters. Prior to a decision by the court of the latest Relocation Plan, the principal parties to the action (the LPA and the plaintiffs) came to a settlement of the issues which divided them. The settlement was approved by the court and the action (save a remaining question concerning attorney's fees) was dismissed.

San Francisco Tomorrow, et al. vs. Romney. This action was brought by several community and environmental organizations and several individuals seeking injunctive and declaratory relief against the Secretary and local Director of HUD. The plaintiffs sought to have 3 urban renewal projects in the San Francisco area declared "major federal actions significantly affecting the quality of the human environment" within the meaning of Section 102(2)(c) of the National Environmental Policy Act (NEPA), 83 Stat. 852, 42 U.S.C., 4332(2)(c), and to have HUD officials enjoined from continuing to approve or finance these three projects until HUD prepared an environmental impact statement in compliance with NEPA. The action was originally filed on January 3, 1972.

On April 25, 1972, after several hearings on the complaint, and after considering the various pleadings, legal memoranda and affidavits presented, the U.S. District Court granted the defendant's motion to dismiss giving two grounds for the decision:

1. The organizational and individual plaintiffs did not possess the requisite standing to maintain the action;

2. An environmental impact statement by the HUD officials was not required for the challenged projects since all relevant Federal actions had taken place prior to January 1, 1970, the effective date of NEPA.

The plaintiffs, on April 27, 1972, filed a notice of appeal with the U.S. Court of Appeals for the Ninth Circuit. On June 8, 1972, plaintiffs sought an injunction from the Ninth Circuit pending appeal. On June 16, 1972, the Appeals Court denied the request for injunction. The plaintiffs then requested a stay pending appeal from Supreme Court Justice William O. Douglas as Circuit Justice for the Ninth Circuit. On July 7, 1972, Justice Douglas granted a stay pending disposition of the case by the Court of Appeals.

Thereafter, following consideration of briefs and arguments the Court of Appeals issued its decision on January 18, 1973.

After concluding that NEPA does not call for retroactive application, the Court examined the chronological series of events relating to each of the two remaining projects (one project was dismissed from the case by stipulation) to determine whether or not, subsequent to January 1, 1970, some further major action significantly affecting the quality of the human environment was required of HUD in the development of either project.

Upon examination of the series of events in Yerba Buena, the court held that for the purposes of NEPA, the major Federal action terminated on December 2, 1966 when HUD executed the Loan and Grant Contract, and further concluded that the amendatory contracts increasing Federal funding to provide for the rising costs of land acquisition and relocation did not constitute "further major Federal action" and HUD monitoring of the project likewise involved no major Federal action. Appellant's reliance upon the highway cases involving staged approvals proved to be misplaced.

The series of events in West Berkeley, primarily the conversion to NDP and approval of the first action year grant on February 10, 1970, some 40 days after the effective date of NEPA, resulted in a holding by the court that the project may go forward only upon compliance with the requirements of NEPA.

Duskin vs. Alioto, et al., Supreme Court, State of California. This action was filed on January 31, 1972, and was entitled "Action To Recover and To Enjoin Unlawful Expenditure of Public Funds." The Agency was not named in the original Complaint but was subsequently served as a Doe and the Complaint was amended to include charging allegation against the Agency. This taxpayer suit alleges that the City cannot expend funds from the Hotel Tax Fund for the public facilities without an Environmental Impact Report. The City has prepared an Environmental Impact Report under the provisions of the California Environmental Quality Act. Additionally, the Complaint alleges that the City is prohibited under California law and the City Charter from proceeding with the financing of the public facilities in Yerba Buena Center without a vote of the electorate. There are eight Causes of Action alleged in the Complaint.

Williams, et al. vs. City and County of San Francisco, Supreme Court, State of California. This was an action brought on July 1972 under the provisions of California Code of Civil Procedure 860 and 526a. Essentially plaintiffs contend that the City is prohibited from entering into a financing agreement with the San Francisco Redevelopment Agency whereby the Agency would issue Revenue Bonds for the construction of the public facilities in Yerba Buena Center. They contend that this cannot be done without a vote of electorate.

Del Camp Investment Co., vs. Romney, et al., U.S.D.C., N.D. California. This was an action for declaratory and injunctive relief instituted by the owner of a hotel within the YBC project area. The plaintiff's property was condemned by the LPA in the state courts but the judgment is on appeal.

The main thrust of this action is that there was impropriety in the 90-day notice served by the LPA pursuant to the law. The plaintiff contends that the LPA was premature in its attempts to gain possession of the hotel in relation to the scheduling of construction and public improvements in the project area. Other contentions of the plaintiffs concern alleged violations of Federal, state and local law and HUD regulations and rules, i.e., (1) lack of a feasible relocation plan; (2) illegal condemnation of lands; (3) improper inclusion of plaintiffs land in the project area; (4) violation of numerous Federal regulations in the selection of the project area and adoption of the Redevelopment Plan; (5) insufficiency of the blight determination and a challenge to the state law and HUD standards on the issue of blight.

The same facts, but different legal issues, are involved in litigation in the state courts and the Federal action is being held in abeyance pending final determination of the state issues.

Rukshamani Patel et al. vs. SFRA, HUD, et al., U.S.D.C., N.C., California. This is a suit initiated by three former owners of hotels in the YBC project area, seeking to enjoin the termination or modification of certain management and lease agreements between the LPA and the plaintiff on the grounds that such termination or modification would violate the Order of the Court in the TOOR case. Request for preliminary relief was denied the plaintiffs, and the case was dismissed.

Duskin vs. Redevelopment Agency of the City of San Francisco, Supreme Court, State of California. This is a taxpayer's suit in the state courts to restrain disposition of urban renewal project lands to a developer on the grounds that the LPA violated state law and HUD regulations in establishing the disposition price of land, and that the LPA failed to hold a public hearing prior to the sale of the land. The case has been dismissed with prejudice.

815 Mission Corporation vs. SFRA, U.S.D.C., N.D., California. This was an action of a former owner of a hotel in the YBC project area for damages and attorney's fees incurred in state court actions resulting from the failure of the LPA to give a proper 90-day notice pursuant to Federal law and HUD regulations. The plaintiff has now abandoned the action.

R. B. Patel et al. vs. SFRA, Supreme Court, State of California. Plaintiffs filed three separate actions against the LPA alleging the breach of Rental Agreements for the rental of furniture and furnishings in the Knox, Jessie and Mars Hotels in the YBC area; and seeking money damages. A further cause of action alleges a breach of the management contract for the operation of the Mars Hotel.

Git Sin Ng vs. SFRA, Supreme Court, State of California. This action was similar to the Patel case above except that it relates to the Rock Hotel. The plaintiff has dismissed with prejudice after deciding to take her relocation payments and abandon the furniture.

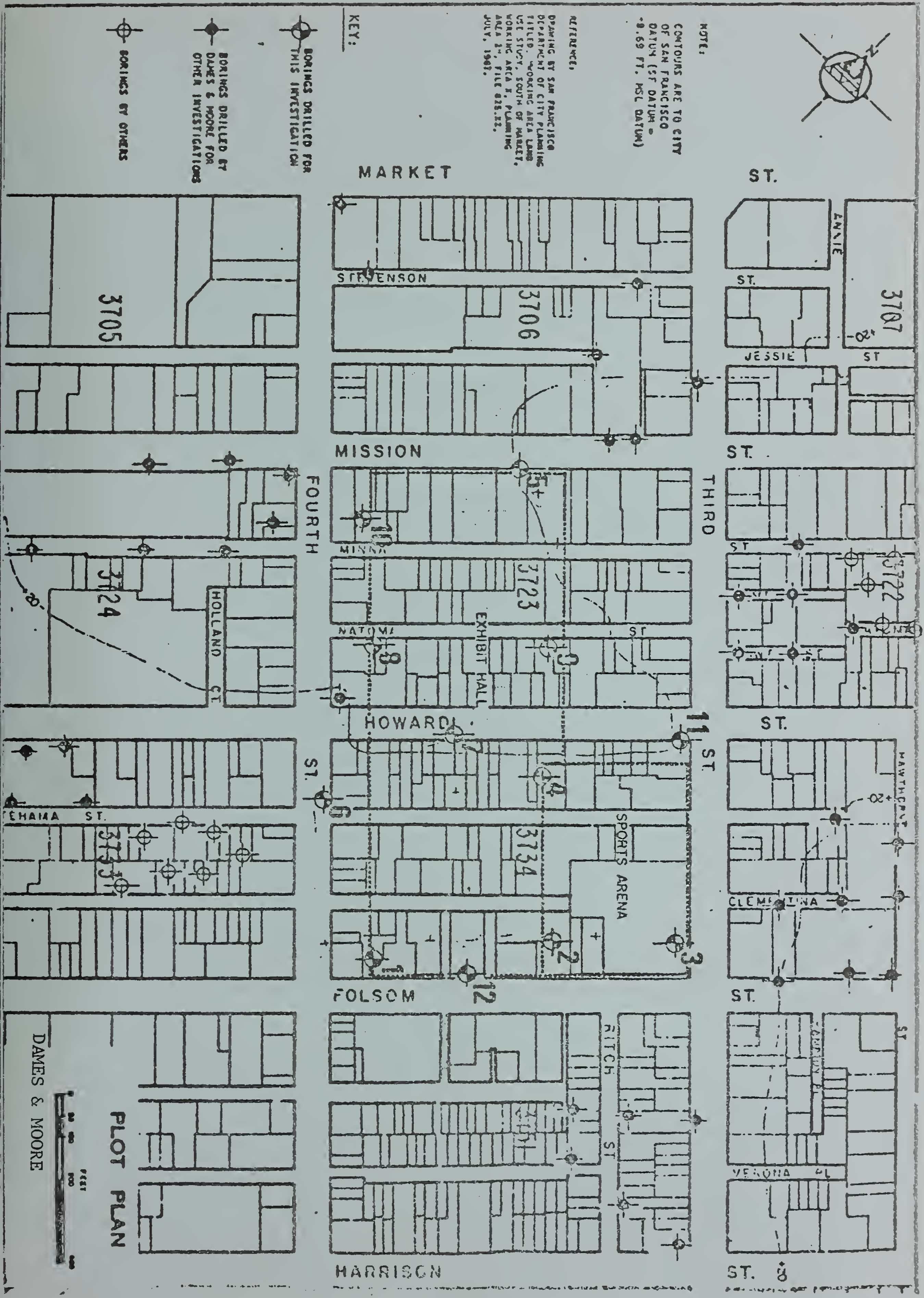
Charles Capanella Co. vs. SFRA, Supreme Court, State of California. This is an action by a demolition contractor for damages resulting from a purported breach of two demolition contracts because the LPA failed to release the buildings for demolition in accordance with the contract. The LPA has defended on the grounds that the injunction in the TOOR case restrained the LPA from allowing demolition. The case is under submission having been tried on December 10, 1973.

APPENDIX F

GEOLOGY

1. Foundation Investigation Plot Plan
2. Generalized Soil Profiles
3. Historical Geologic Formations

APPENDIX F_1


NOTE:
CONTOURS ARE TO CITY OF SAN FRANCISCO DATUM (SF DATUM = +8.69 FT. MSL DATUM)
REFERENCE:
DRAWING BY SAN FRANCISCO DEPARTMENT OF CITY PLANNING TITLED, "WORKING AREA LAND USE STUDY, SOUTH OF MARKET, WORKING AREA X, PLANNING AREA 3", FILE 828.22, JULY, 1967.
KEY:
BORINGS DRILLED FOR THIS INVESTIGATION
BORINGS DRILLED BY DAMES & MOORE FOR OTHER INVESTIGATIONS
BORINGS BY OTHERS
MARKET ST.
STEVENSON
ST.
ANNIE
JESSIE ST
MISSION ST.
FOURTH
THIRD
MINNA
ST
NATOMA
ST
HOLLAND CT.
EXHIBIT HALL
HOWARD
ST.
TEHAMA ST.
SPORTS ARENA
CLEMENTINA
FOLSOM ST.
RITCH ST
VERONA PL
HARRISON ST.
3705
3706
3707
3724
3723
3722
3734
3735
3761
-0-
-8-
5
10
8
9
11
7
4
6
2
3
12
PLOT PLAN
DAMES & MOORE
FEET
0
200
PLATE

APPENDIX F_2

STRATA DISCRIPTION	ELEVATIONS OF TOP OF STRATUM											
	BORING 1	BORING 2	BORING 3	BORING 4	BORING 5	BORING 6	BORING 7	BORING 8	BORING 9	BORING 10	BORING 11	BORING 12
DUNE SAND OR FILL (GROUND SURFACE)	+8	+13	+16	+10	+20	+15	+20	+20	+20	+16.5	+20	+10.5
SOFT TO STIFF ORGANIC CLAYS & SILTS (BAY OR MARSH DEPOSITS)	-6	-	-	-4	-1	-10	-15	-17	-7	-3	-2	-3
DENSE CLAYEY SAND OR SANDY CLAYS	-14	-2	+2	-8	-4	-12	-22	-18	-9	-9	-6	-6
DENSE SILTY SAND (BEARING SANDS)	-19	-14	-6	-16	-17	-23	-29	-24	-16	-20	-15	-17
OLD BAY CLAYS INCLUDING INTERMEDIATE SANDS	-64	-65	-92	-63	-74	-65	-70	-78	-76	-67	-58	-64
RESIDUAL SOILS	-177	-	-108	-224	-237	-	-	-	-	-	-	-
ROCK	-185	-	-126	-240	-245	-	-	-	-	-	-	-
END BORING	-199	-88	-132	-246	-255	-85	-80	-86	-81	-84	-80	-90

NOTES:

(1) ELEVATIONS REFER TO CITY OF SAN FRANCISCO DATUM.

(2) DETAILED LOGS FOR EACH OF THE BORINGS ARE PRESENTED ON PLATES A 1A THROUGH A 1L.

(3) THE SOILS ARE CLASSIFIED IN ACCORDANCE WITH THE NOMENCLATURE DESCRIBED ON PLATE A2, SOIL CLASSIFICATION CHART & KEY TO TEST DATA.

GENERALIZED SOIL PROFILES

APPENDIX F3

HISTORICAL SITE GEOLOGY

MAJOR STRATIGRAPHIC AND TIME DIVISIONS OF ROCKS IN THE SAN FRANCISCO BAY AREA*

ERA	SYSTEM OR PERIOD	SERIES OR EPOCH	ESTIMATED AGES OF TIME BOUNDARIES IN MILLIONS OF YEARS**
Cenozoic	Quaternary	Holocene	0.01
		Pleistocene	2 to 3
	Tertiary	Pliocene	12
		Miocene	25
		Oligocene	40
		Eocene	60
		Paleocene	70
Mesozoic	Cretaceous	Upper (Late)	
		Lower (Early)	135
	Jurassic	Upper (late)	
		Middle (Middle)	
		Lower (Early)	180

There are two basic geologic formations found in the San Francisco area which include the older consolidated rock known as the bedrock (Franciscan Formation) and numerous unconsolidated layers above of more recent history. These rock and sediments of the San Francisco Bay Area range in age from Jurassic, 135-180 million years old, to present. The oldest exposed rocks east of the San Andreas fault are sedimentary, volcanic, and metamorphic rocks of the Franciscan Formation.*** The young unconsolidated layers above the bedrock are pleistocene and are a geological recent or even historical in age.

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* Urban Environmental Geology in San Francisco Bay Region, Association of Engineering Geologists, Special Publication, Oct. 1969.

** Holmes, A., Principles in Physical Geology, 2nd ed., 1965, the Ronald Press, p. 360 (except Holocene-Pleistocene boundary, which is arbitrarily taken at 10,000 years ago).

The bedrock Franciscan Formation is a heterogeneous assemblage of rock types, mostly sedimentary and volcanic, that accumulated on the deep sea floor in late Jurassic to late Cretacious time. Sandstone and shale make up 80% to 90% of the formation. The remainder is predominantly volcanic rocks and minor amounts of chert and shale, conglomerate, limestone and metamorphic rocks.

*** Regional Geology Supplement Report IS-3, August 1968, pp. 3-5.

APPENDIX G

CORRESPONDENCE WITH
ROBERT L. RUMSEY, EXECUTIVE DIRECTOR
SAN FRANCISCO REDEVELOPMENT AGENCY

MITIGATING MEASURES

ROBERT L. RUMSEY, Executive Director

APPENDIX G

JOSEPH L. ALIOTO, Mayor

Walter F. Kaplan, Chairman
Francis J. Solvin, Vice Chairm
Stanley E. Jensen
Joe Mosley
James A. Silva

SAN FRANCISCO REDEVELOPMENT AGENCY
939 ELLIS STREET • SAN FRANCISCO 94109
ADDRESS MAIL TO POST OFFICE BOX 646 • SAN FRANCISCO, CALIFORNIA 94101

(415) 771-8800

March 19, 1974

Mr. James P. Jaquet
Program Manager, Area C
Department of Housing and Urban Development
One Embarcadero Center, Suite 1600
San Francisco, CA 94111

Dear Mr. Jaquet:

The following is in response to recommendations contained in your letter of January 10, 1974 and our discussion of that letter in the interim regarding areal subsidence monitoring, protection of archaeological finds, and earthquake safety in Yerba Buena Center.

Areal Subsidence Monitoring

The City and County of San Francisco, acting in the capacity of developer of the Yerba Buena Center Public Facilities, has contracted with the firm of Dames and Moore for soil engineering consultation services. The City has concurred with the recommendations of Dames and Moore that a monitoring system be established to detect possible areal subsidence due to dewatering of the Public Facilities construction site.

The monitoring system, which has not yet been designed, will permit periodic measurements to be taken at the periphery of the dewatered area. In the event that subsidence is detected outside the Public Facilities site, affected areas will be recharged to bring the ground water up to normal levels.

Protection of Archaeological Finds

This Agency will encourage and permit the rapid and orderly removal of significant archaeological finds in Yerba Buena Center, should such be found during the course of excavation. Prior to commencement of construction, we will advise the University of California at Berkeley, California State University at San Francisco, the California Historical Society, and others of the excavation schedule.

Earthquake Safety

All new construction in redevelopment projects, as elsewhere in San Francisco, is subjected to rigorous engineering review by the Bureau of Building Inspection. Such review is designed to ensure that new development is in conformance with the San Francisco Building Code. The Code agrees in all essential respects with Uniform Building Code standards for Seismic Zone 3. Normally under the Code static analysis of structures is considered sufficient; however, in instances where special interpretation of the regulations or innovative structural design is involved, additional analysis is required. (For example, St. Mary's Cathedral was subjected to dynamic analysis at the request of the Bureau of Building Inspection.) Therefore, in our opinion, the normal review process under the Building Code is adequate to promote earthquake safety in new construction in Yerba Buena Center.

Under the San Francisco Building Code, developers are required to perform soils analysis. In addition, the City will make available to private developers its finding with regard to soils conditions in Yerba Buena Center.

Finally, the sequencing of construction of the Public Facilities will require the extensive use of wooden shoring during the construction period. While this shoring cannot in any sense guarantee earthquake safety, it will provide additional support and improve the earthquake safety characteristics of the Public Facilities during the vulnerable construction period.

Should you have any additional questions regarding these matters, please contact the Project Director of the Yerba Buena Center Public Facilities, Mr. Lance Burris, at 771-8800, Extension 227.

Sincerely,

Robert L. Rumsey
Executive Director

cc: Mr. Thomas J. Mellon
Chief Administrative Officer
City and County of San Francisco

9.1PM-C

Mr. Robert L. Rumsey
Executive Director
San Francisco Redevelopment Agency
Post Office Box 646
San Francisco, California 94101

Dear Mr. Rumsey:

Subject: Yerba Buena Center (R-59)
Environmental Impact Statement

In our review of the geological and archeological impacts of the proposed YBC project, it appears that there is a minor possibility of areal subsidence as the result of the initial dewatering effort. Your staff has indicated that the dewatering effort will be closely monitored and that corrective action will be taken if any subsidence is detected. In order to assure the stability of the surrounding structures, and most particularly of the historic St. Patrick's Church, we would appreciate an analysis of the preventive and corrective actions the Agency is prepared to take to mitigate against any potential negative impact from areal subsidence.

Based upon the nearby BART excavations and the uncovering of an ancient skeleton, we have reason to believe that some items of archeological significance may exist in the YBC project area. We would appreciate assurances from the Agency that appropriate study and preservation measures will be taken should such items be found.

Finally, we would like to advise you that recently revised HUD guidelines have been issued on "Earthquake Procedures for HUD Programs in Seismic Zones II and III (September 10, 1973; copy attached) SF 4541.1.

The studies performed by John A. Blume and Associates on the public facilities meet these requirements but there is no indication that similar studies have been performed for the private developments. Although the guidelines are designed for HUD housing projects and not for urban renewal areas, we recommend that they be incorporated in all future land disposition contracts in YBC and be closely monitored by the Agency to assure seismic safety beyond that required by the Uniform Building Code. We also request that the Agency provide us with a description of the measures to be taken during construction of the public facilities to prevent structural collapse in the case of seismic activity.

Should you have any questions or concerns regarding these findings and requests, please do not hesitate to call me.

Sincerely,

Original signed by:
James P. Jaquet
James P. Jaquet
Program Manager
Area C

APPENDIX H

LIQUID WASTES

1. YBC Generation of Liquid Wastes
2. Estimated Street Run-Off Pollutants
3. North Point Treatment Facilities, Total Loadings

APPENDIX H1

YBC Generation of Liquid Domestic Wastes*

Phase I - Start of Construction - June 1978

Public Parking Garage - 660,000 sq. ft. @ 33g/day/1,000 sq. ft. = 0.022 mgd
Exhibit Hall and Meeting Rooms (ave. = 0.06 mgd); max. = 0.530 mgd**

Third and Mission Office -- 510,000 sq. ft. @ 125 g/day/1,000 sq. ft. = 0.064 mgd
Fourth and Mission Office 550,000 sq. ft. @ 125 g/day/1,000 sq. ft = 0.069 mgd
Hotel - 490 employees 25g/day and maximum of
980 guests @ 65 g/capita/day = 0.076 mgd
(average guests - 784 for average wastes of 0.063 mgd)
(optional Office of 510,000 sq. ft. = 0.064 mgd)
Retail & Trade Center -- 343,000 sq. ft. @ 200 g/day/1,000 sq. ft. = 0.069 mgd

Community College -- 7,000 sq. ft. retail @ 200g/day/1,000 sq. ft
Plus 8,200 part-time students & employees @ 25g/capita/day = 0.206 mgd
Site #3 Office -- 36,000 sq. ft. @ 125g/day/1,000 sq. ft. = 0.067 mgd
Clementina Towers -- 300 residents @ 100g/capita/day = 0.030 mgd
Salvation Army Apts -- 50 on-site residents @100g/capita/day = 0.005 mgd
Site #13 Office -- 275,000 sq. ft. @ 125 g/day/1,000 sq. ft. = 0.034 mgd
Site #16 Office -- 1,000,000 sq. ft. @ 125/g/day/1,000 sq. ft. = 0.125 mgd
Site #6 Housing -- 150 residents @ 100g/capita/day = 0.015 mgd
(Optional Office of 39,000 sq. ft. = 0.049 mgd)

Phase I Total = 1.312 mgd

---

* Standard unit loadings were established by Brown and Caldwell, Consulting Engineers in their "Report to the Redevelopment Agency on YBC, Hunters Point and Western Addition A-2," p. 18. Average square footage estimates have been developed for the office buildings based upon the parcel size and development standards.

** Estimates for the Exhibit Hall, Sports Arena and Theater were developed by Brown and Caldwell by surveying comparable facilities in the area and developing a comparative analysis.

Phase II - July 1978 - December 1979

Existing waste from Phase I			= 1.312 mgd
Arena	(ave. = 0.10 mgd);	max.	= 0.780 mgd
4th & Folsom Office --	510,000 sq. ft. @ 125 g/day/1,000 sq. ft.		0.064 mgd
Apparel Mart -	1,086,000 sq. ft. @ 200 g/day/1,000 sq. ft.		0.217 mgd
Apparel Parking -	220,000 sq. ft. @ 33 g/day/1,000 sq. ft.		0.007 mgd
Site #15 Office -	500,000 sq. ft @ 125/g/day/1,000 sq. ft.		= 0.063 mgd
Site #17 Office -	600,000 sq. ft.@ 125/g/day/1,000 sq. ft.		= 0.075 mgd
Site #18 Office -	500,000 sq. ft.@ 125/g/day/1,000 sq. ft.		= 0.063 mgd
	Phase II Total		2.581 mgd

Phase III - January 1980 and After

Existing waste from Phase II			2.581 mgd
Market Street Office --	705,000 sq. ft. @ 125 g/day/1,000 sq. ft.		= 0.088 mgd
Theater --	(ave. = 0.01);	max	= 0.090 mgd
Site #4 Housing --	175 residents @ 100g/capita/day		= 0.018 mgd
	(Optional Office - 200,000 sq. ft. = 0.025 mgd)		
Salvation Army Community Center --	20 employees @ 25 g/capita/day		= 0.001 mgd
Site #9 Housing --	175 residents @ 100g/capita/day		= 0.018 mgd
	(Optional Office - 167,000 sq. ft. = 0.021 mgd)		
Site #10 Office --	500,000 sq. ft. @ 125g/day/1,000 sq. ft.		= 0.063 mgd
Site #11 Office --	100,000 sq. ft. @ 125g/day/1,000 sq. ft.		= 0.013 mgd
Site #12 Office --	140,000 sq. ft. @ 125g/day/1,000 sq. ft.		= 0.018 mgd
Site #14 Office --	130,000 sq. ft. @ 125g/day/1,000 sq. ft.		= 0.016 mgd
	Total upon full development		= 2.906 mgd

APPENDIX H_2

ESTIMATED STREET RUNOFF POLLUTANTS
YERBA BUENA CENTER

							Bacteria	
Loadings	BOD5	Total Solids	Suspended Solids	Phosphates	Kjeldahl Nitrogen	Nitrates	Total Coliform	Fecal
(lbs/day)								
Maximum	3.60	452	181	0.43	0.701	0.277	$1,060 \times 10^9$	310×10^9
Average	0.75	339	136	0.32	0.526	0.208		
Low	1.83	226	90	0.21	0.350	0.138		
(mg/1)								
Maximum	214	26,390	10,556	26.6	41.0	16		
Average	161	19,793	7,916	20.0	31.0	12		
Low	107	13,195	5,270	13.3	20.5	8		

Source: Arthur D. Little, Draft E.I.R., p. V-J-4, Figure J-1; derived from data provided by URS Research Company.

PLANT DATA
1970 CALENDAR YEAR

PLANT	SUSPENDED SOLIDS		B.O.D.		GREASE		FLOW
	10^6 x lbs. / Year	% Removed	10^6 x lbs. / Year	% Removed	10^6 x lbs. / Year	% Removed	10^3 M.G./Yr
N.P.W.P.C.P. Influent Effluent	32.7 13.4	59	44.7 29.5	34	10.5 5.6	47	23.8 23.3
R.S.W.P.C.P. Influent Effluent	9.1 3.5	62	11.4 8.2	28	2.8 2.2	21	7.6 7.4
S.E.W.P.C.P. Influent Effluent	18.5 12.6	32	14.2 10.1	29	6.8 3.9	43	7.3 7.6

Source: San Francisco Master Plan for Waste Water Management, Preliminary Book of Plates, Prepared by the Department of Public Works, September 15, 1971, Plate IV-24.

AVERAGE LOADING DATA
(Supplemental)

CONSTITUENT	NPWPCP	RSWPCP	SEWPCP
FLOW (MGD)	59.0	20.2	19.2
FLOATABLES (10^3 lb/day)			
Influent	1.6	0.52	0.54
Effluent	1.2	0.39	0.36
TOTAL NITROGEN (10^3 lb/day)			
Influent	17	6.3	7.9
Effluent	15	5.9	8.9
TOTAL PHOSPHORUS (10^3 lb/day)			
Influent	14	6.0	5.0
Effluent	12	6.3	6.2
T.I.C.H.* (lb/day)			
Influent	0.18	0.11	0.10
Effluent	0.18	0.10	0.07

* Total Identified Chlorinated Hydrocarbons

Plate IV-28

APPENDIX I

YBC GENERATION
of
DOMECTIC SOLID WASTES

APPENDIX I.

YBC Generation of Solid Domestic Wastes*

Residential & Hotel Guests -
1,634 residents @ 2.5 lbs./capita/day X 365 days = 746 tons yr.

Employment -
population of approx. 35,528 @ 3.5 lb./capita/day X 260 days = 16,165 tons yr.

Transient Population --
daily average of approx. 8,000** @ 3.5 lb./capita/day X 365 days = 5,110 tons/yr.

Special Waste
Street Refuse - 120 lbs/capita/yr. @ approx 45,358 pop. = 2,721 tons/yr.
Sewage Residue - 54 lbs/capita/yr. @ " " " = 1,225 tons/yr.

Total annual domestic wastes = 25,967 tons/yr.

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* Standard wastes per capita were developed by the California State Department of Public Health in Status of Solid Waste Management in California, 1968, p. III - 11. Standards vary according to the level of density in an area as well as by type of land use.

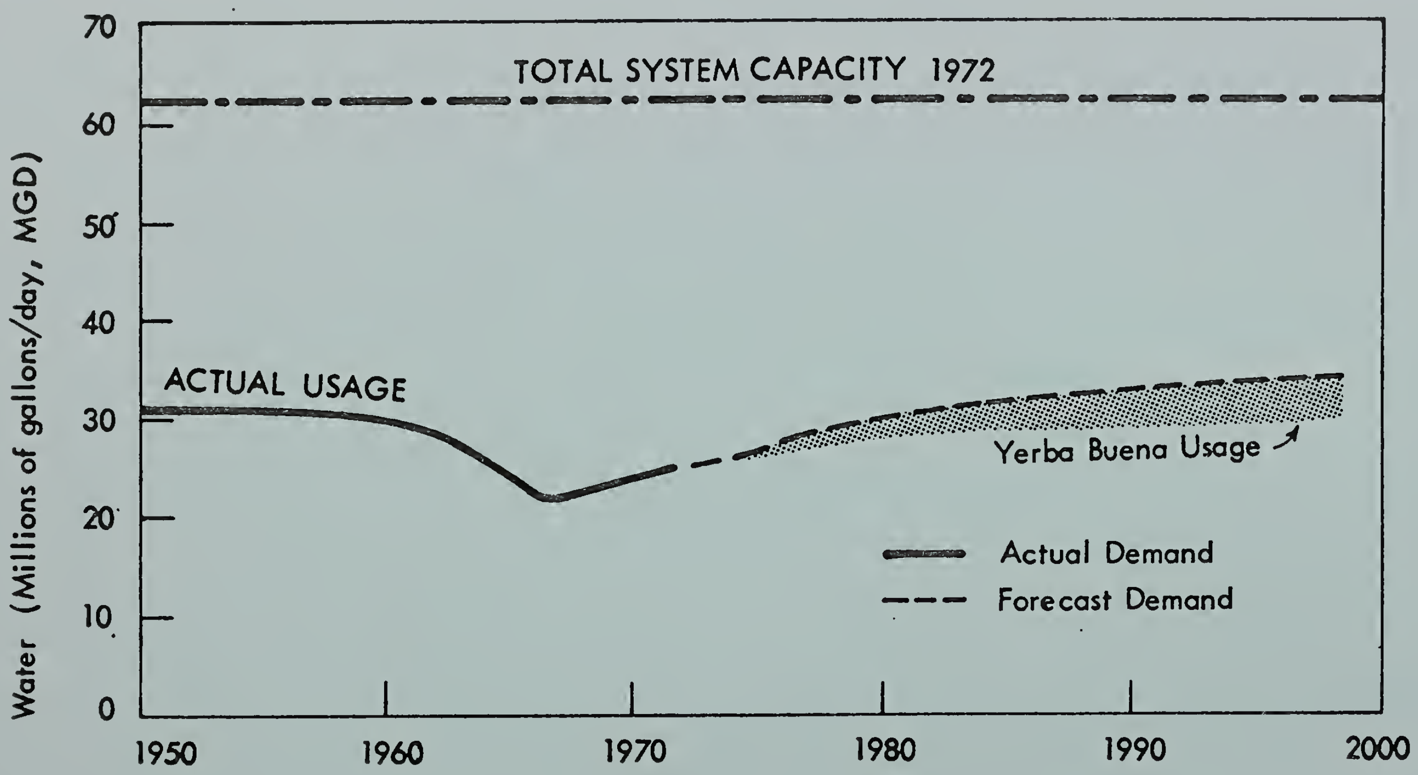
** The daily transient population could vary as much as from zero on days when no events are planned in the public facilities to a maximum of 71,900 if the Convention Center, Sports Arena and Theater are being used simultaneously to full capacity. The average is based upon use days and estimated attendance per event, divided by 365 days.

APPENDIX J

UTILITIES

1. San Francisco Water Demand Curve - University Mound Reservoir
2. YBC Projected Electrical Loads
3. Computation of Residential Electrical Requirements
4. San Francisco Projected Electrical Demand Curve
5. Computation of Residential Natural Gas Consumption
6. San Francisco Projected Natural Gas Consumption
7. Computation of Utility Impacts of Proposed Plan Changes

APPENDIX J_1



WATER DEMAND CURVE - UNIVERSITY MOUND RESERVOIR
SAN FRANCISCO

Source: Arthur D. Little, Draft E.I.R., p. V-J-18, Figure J-8; derived from data provided by San Francisco Water Department and URS Research Company.

UANE M. HANSON, PRESIDENT
OGER T. LEFLER, ASSOCIATE
HILIP T. WONG, ASSOCIATE
RANT Y. L. WONG, ASSOCIATE

GAYNER
ENGINEERS
821 HOWARD STREET
SAN FRANCISCO, CALIF. 94103
TELEPHONE 415-398-1303

EDGAR D. MORGAN, VICE PRESIDENT
CHARLES W. CASTROVINCE, ASSOCIATE
ROBERT L. MAYERSON, ASSOCIATE
LLOYD B. BYRON, ASSOCIATE

APPENDIX J_2

May 10, 1972
File NO. 10486

Pacific Gas & Electric Company
375 Mission Street
San Francisco, California 94106

Attn: Mr. R. McKillican-Power Engineer Sales Department

re: Y.B.C. - Electrical Loads,
Sports Arena & Central Plant.

Gentlemen:

The following is a summary of the preliminary electrical loads for the subject buildings:

I. Sports Arena

1. Estimated Maximum connected load = 4800 KVA
2. Estimated Maximum demand load = 3200 KVA

We are requesting a service voltage of 277/480 volts, 3-phase, 4-wire, at a point near Howard and Third Streets. Please furnish us the available short circuit current at the point of service entrance, the maximum motor for across the line starting and the necessary transformer vault size and location.

II. Central Plant

1. Estimated maximum connected load - 4100 KVA
2. Estimated maximum demand load = 3200 KVA

We are requesting a service voltage of 4,160 volts, 3-phase, 3-wire at a point near Shipley Street. Please furnish us the available short circuit current at the point of service entrance and the necessary transformer vault size and location.

Enclosed are two (2) copies of the site plan for the subject building and two (2) copies of the preliminary distribution scheme for the Central Plant. Please return one (1) copy of the site plan and distribution scheme, with your comments, to our office. Your prompt action will be greatly appreciated.

Very truly yours,

GAYNER ENGINEERS

Lawrence S. Wolff

cc. Alan Williams/McCue, Boone, Tomsick

enclosures (4)

LSW:kd

ane M. Hanson, President
D. Morgan, Vice Pres.
oyd B. Byron, Associate
ger T. Lefler, Associate
rles W. Castrovince, Associate
bert J. Mayerson, Associate

GAYNER ENGINEERS
1065 Market Street
San Francisco, California 94103
Phone 626-1050

April 27, 1972
File Number 10452

Electricity

Latest

Pacific Gas and Electric Company
375 Mission Street
San Francisco, California 94106

Attention: Mr. R. McKillican
Power Engineering Sales Department

Re: Y.B.C. Service and Load Requirements.

Gentlemen:

In accordance with our meeting of April 20, 1972, the following is a summary of preliminary electrical loads for the subject buildings:

I. GARAGE

		Connected Load	Max. Demand Load
1.	Lighting	350 KW	350 KW
2.	Conv. Power	17 KW	8 KW
3.	H. and V.	3,300 KW	2,640 KW
4.	Elev. and Escal.	190 KW	95 KW
5.	Plumbing	150 KW	120 KW
	Sub Total	4,000 KW (approx.)	3,200 KW (approx.)

II. EXHIBIT HALL

		Connected Load	Max. Demand Load
1.	Lighting	3,400 KW	3,400 KW
2.	Floor Power	14,300 KW	5,110 KW
3.	Conv. Power	150 KW	75 KW
4.	H. and V.	1,300 KW	1,000 KW
5.	Plumbing	450 KW	360 KW
6.	Elev. and Escal.	100 KW	50 KW
	Sub Total	19,700 KW (approx.)	10,000 KW (approx.)

III. MEETING HALL

		Connected Load	Max. Demand Load
1.	Lighting	340 KW	340 KW
2.	Conv. Power	25 KW	13 KW
3.	H. and V.	240 KW	192 KW
4.	Plumbing & Kitchen	1,000 KW	850 KW
5.	Elev. and Escal.	100 KW	50 KW
	Sub Total	1,700 KW (approx.)	1,500 KW (approx.)
	TOTAL	25,400 KW	14,700 KW

We are requesting a 4,160 volt, 3-phase, 3 wire service, located on Howard Street, approximately 250 feet West from Third Street. Two (2) prints each of Drawings #1 through #10 inclusive and MP-1, are enclosed for your use together with a preliminary service distribution for the subject buildings. Please return one (1) set of prints to our office with your comments. In addition, we are requesting the available short circuit current at the point of service entrance and the largest motor for across the line starting.

It is anticipated that the service design must be finalized by the last quarter of 1972, so that our contract schedule can be met. Your immediate attention to the above will be greatly appreciated.

Very truly yours,

GAYNER ENGINEERS

Lawrence S. Wolff

Lawrence S. Wolff

LSW:lp

cc: Mc Cue, Boone, Tomsick
Attention: Alan Williams

Source: URS Research Company, Yerba Buena Center Raw Utilities Data.

APPENDIX J3

COMPUTATION OF RESIDENTIAL UTILITY REQUIREMENTS

Electric

Kilowatt Demand Attributable to 400 Residential Units

1. Estimated kilowatt-hours per dwelling unit per month.

Lighting, Refrigeration, Cooking & Sm. Applicances -	200 Kwh
Offices & General	20 "
Elevators	25 "
Ventilating Fans, Hallway Lighting, etc.	15 "
Water Pumps	10 "
Transformer & Line Losses	9 "
Total/DU/Month	279 Kwh

Total for 400 DU's = (279 Kwh) (400 DU's)

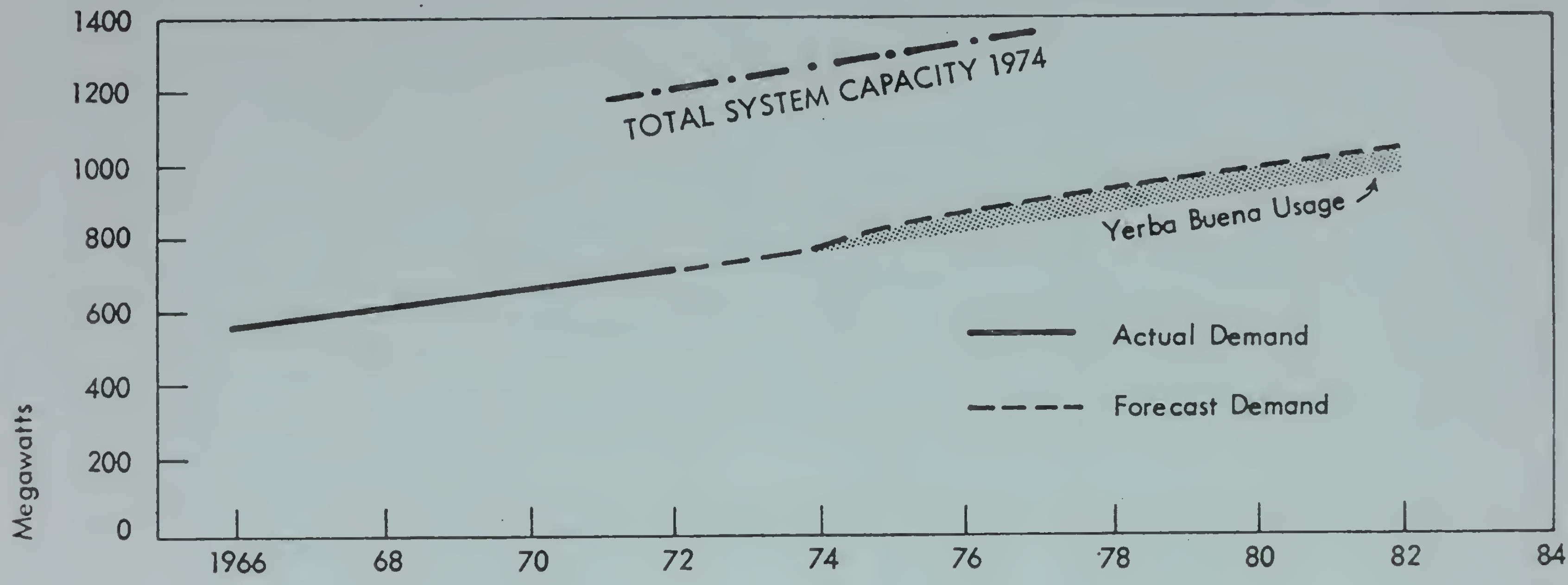
= 111,600 Kwh/Month

2. Total residental KW demand.

KW Demand @ 2.55 watts/Kwh

$$= \frac{2.55\ (111,600)}{1,000} = 285\ \text{KW}$$

APPENDIX J_4



DEMAND CURVE - ELECTRICAL DISTRIBUTION SYSTEM
TOTAL SAN FRANCISCO

Source: Arthur D. Little, Draft E.I.R., p. V-J-12, Figure J-5; derived from data provided by Pacific Gas and Electric Company and URS Research Company.

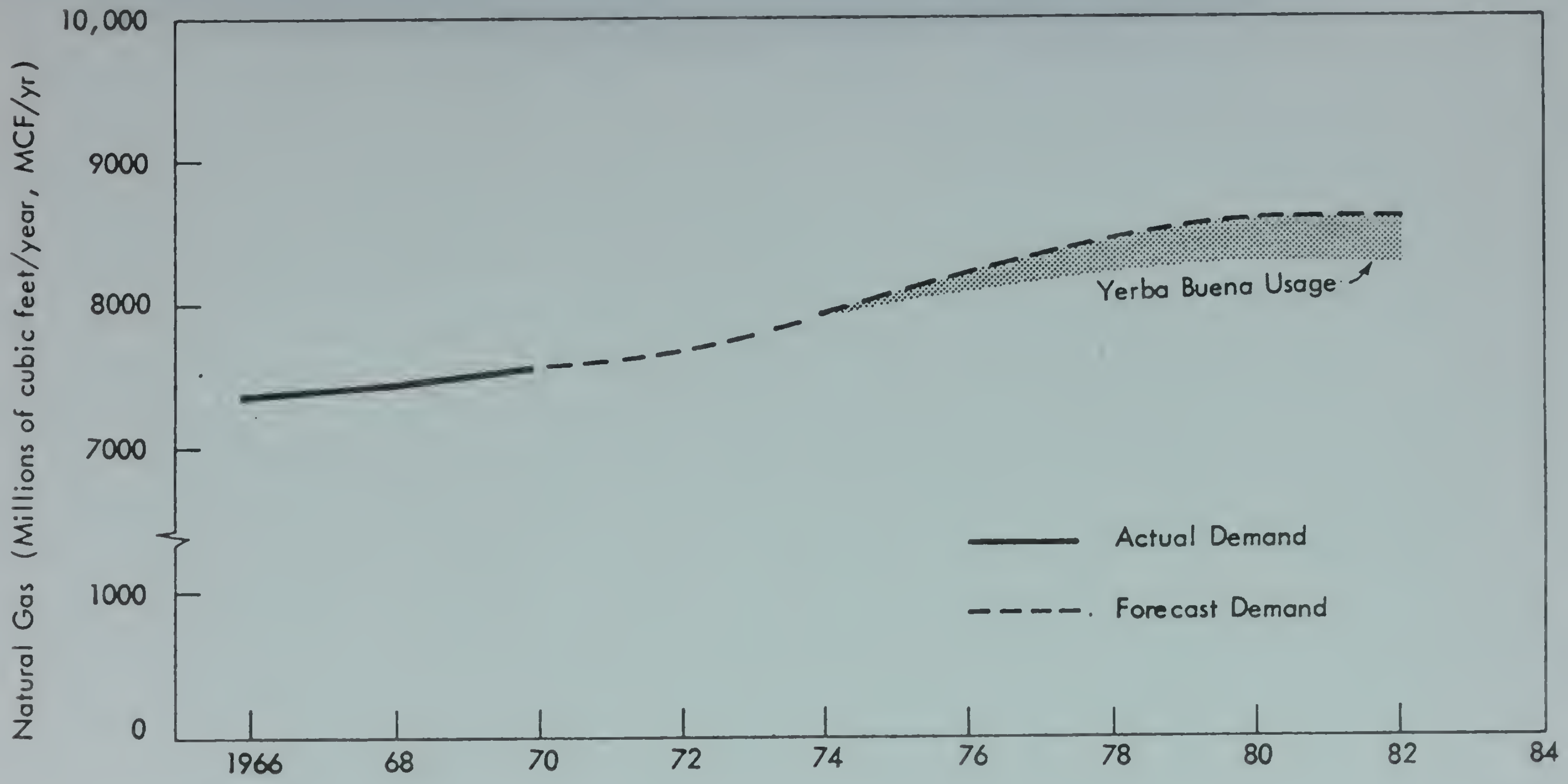
APPENDIX J5

Natural Gas

Consumption Attributable to 400 Residential Units:

Estimated consumption per dwelling unit:

Cooking	-	5.5 ccf
Domestic Hot Water	-	9.5 "
Clothes Dryer	-	3.3 "
Space Heating	-	35.2 "
Total DU/Mo.		53.5 ccf
" " /Yr.		64.2 Mcf
Total Residential		64.2 (400) = 25.68 MMcf



DEMAND CURVE - NATURAL GAS DISTRIBUTION SYSTEM
SOUTH OF MARKET STREET, SAN FRANCISCO

Source: Arthur D. Little, Draft E.I.R., p. V-J-4, Figure J-1; derived from data provided by Pacific Gas and Electric Company and URS Research Company.

APPENDIX J7

POTENTIAL UTILITY IMPACT OF PROPOSED PLAN CHANGES

(1) Hotel demands w/ 490 employees and average of 784 guests:

water - employees @ 20 gpd/capita + guests @ 50 gpd/capita = 0.049 mgd

electricity - 279 kwh/room @ 700 rooms, and 2.55 watts/kwh = 498 KW

gas - 64.2 Mcf/room/yr @ 700 rooms = 44.9 MMcf/yr.

Office building (on hotel site) of 510,000 sq. ft. w/ 2,550 employees:

water - 20 gpd/capita = 0.051 mgd

electricity - 4.7 KW per 1,000 sq. ft. = 2,397 KW

gas - @ 36.5 Mcf per 1,000 sq. ft/yr. = 18.6 MMcf/yr.

(2) 400 Housing units w/approx. 500 residents

water - @ 50 gpd/capita = 0.025 mgd

electricity - 279 Kwh/unit @ 2.55 watts/Kwh = 285 KW

gas - 64.2 Mcf/unit/yr. = 25.68 MMcf/yr.

Three office buildings (on housing sites), totaling 397,000 square feet, w/approx. 1,985 employees:

water - @ 20 gpd/capita = 0.40 mgd

electricity - @ 4.7 KW per 1,000 sq. ft. = 1,866 KW

gas - @ 36.5 Mcf per 1,000 sq. ft./yr. = 14.5 MMcf/yr.

APPENDIX K

CORRESPONDENCE
with the
NATIONAL TRUST for HISTORIC PRESERVATION

APPENDIX K

9.1PM-C

Mr. John L. Frisbee, III
Western Field Service Representative
National Trust for Historic Preservation
West Coast Office
802 Montgomery Street
San Francisco, California 94133

Dear Mr. Frisbee:

We greatly appreciate the time and interest you devoted to responding to our inquiry regarding historic structures in Yerba Buena Center. We have explored the potential of preserving the properties you cited, and would like to relate our findings to you.

The St. Patrick's Church is to be preserved as an integral historic ornament in the Project's main concourse area, and the City plans to develop a small park around the structure.

The Jessie Street substation has been inspected by HUD technicians and found to be "incapable of rehabilitation'. (This is known as a Section 307 finding, under the Housing Act of 1949; the purpose of this Section is to assure that structurally or economically sound buildings are not unnecessarily demolished.) However, the City plans to preserve the main archways and the elements of the unique facade, including the terra cotta cherubs, as a main feature of the entry concourse and park area discussed above.

Several properties which you described are designated as "Owner Participation" parcels; that is, they are to be retained and rehabilitated. A substantial degree of rehabilitation work has already been completed on a number of these structures. As you noted in your letter, the buildings at 20 Hawthorne Street and 620 Folsom Street are fine examples of such cooperative agreements. Other specific examples are found primarily along Fourth, Harrison and Folsom Streets (as noted on the attached map as 3752/2, 3752/11A, 3763/99-101, 3735/9, 3735/10, 3750/50; and on Howard Street, 3722/27; and on Second Street 3735/55. The Redevelopment Agency is also confident that similar agreements will be developed for several other parcels in the near future. (Specifically, 3751/78, 3751/79 and 3752/11).

The other buildings which you mentioned are not, in the assessment of HUD and the Redevelopment Agency, structurally or economically feasible of rehabilitation. These structures do not seriously conflict with the City's most basic objective of the development of the "Central Block" area (Blocks 3706, 3723 and 3734) for public and community facilities; however, HUD and agency inspections have not shown these buildings to be feasible of retention. Several of the structures were scheduled for retention in the original Urban Renewal plan, but subsequent HUD inspections (again, in accordance with Section 307 of the Housing Act) revealed that rehabilitation was not feasible.

Again, thank you for your exceptional attention to this matter. In our assessment, the City is making every effort to retain and rehabilitate the significant structures in the Project area. I am sure that it is our mutual hope that these efforts will serve to advance the objectives of historic preservation.

Sincerely,

Original signed by:
James P. Jaquet

James P. Jaquet
Program Manager, Area C

cc: Mr. David Collins
San Francisco Redevelopment Agency

Guarding America's Heritage

National Trust for Historic Preservation

WEST COAST OFFICE **802 MONTGOMERY STREET** **SAN FRANCISCO, CALIFORNIA 94133** (415) [illegible] 989-6428

February 12, 1974

Mr. James P. Jaquet
Program Manager, Area C
Department of Housing and Urban Development
San Francisco Area Office
One Embarcadero Center, Suite 1600
San Francisco, California 94111

RE: 9/1 PM-C

Dear Mr. Jaquet:

Thank you for affording us the opportunity to comment on properties of possible historic significance in or near the Yerba Buena Center Urban Renewal Project. We appreciate your consideration.

Our regional planner and I toured the area and we would like to bring several matters to your attention. As you are undoubtedly aware, two buildings, the Jessie Street Substation and St. Patrick's Church, on Mission Street, are both prominently featured in Here Today, the architectural survey of San Francisco. Because of their proximity, as well as their architectural quality and historic value, these two structures must certainly merit a priority in your plans. Very possibly the Jessie Street Substation could be put to an adaptive use serving the community. We are aware of instances in which public utilities have been encouraged to retain similar structures. In one case, Pacific Power and Light was encouraged to retain a transformer station in Jacksonville, Oregon, which now serves as a museum on electrical power.

In addition to these structures, we would note a number of others which merit considersation. The several commercial and office structures at the corner of Third and Mission form a handsome complex. In a rehabilitated condition, they could be an attractive office complex. Specifically, we refer to 676-698 Mission, 693-99 Mission and 700 Mission, which is an especially handsome turn-of -the century commercial and office structure. Additionally 760 Mission, adjacent to St. Patrick's and its parish is an attractive building. In fact, we would suggest that the grouping of buildings on the 600 and 700 blocks of Mission, combined with the Jessie Street Substation, make up a complex with considerable rehabilitation potential. If the area between the substation and Mission Street, currently a parking lot, was carefully landscaped, it could be an inviting environment in which to work. While we realize that your existing plans may indicate other uses for these parcels we would hope that you will give reasonable consideration to the possibility of rehabilitating and reusing this complex. We would note that the rehabilitation of 20 Hawthorne Street and 620 Folsom Street are fine examples of what can be done with older structures in this area to place them back in productive community uses.

There are several other parcels we feel should be scrutinized relative to their reuse. 86-98 Fourth Street is a potentially attractive early 20th century commercial complex. The exteriors contain quite handsome neo-classical detailing.

The small grouping of simple office and warehouse structures at 657-665 Harrison is a noteworthy example of "moderne" the typical architectural style of such buildings in the 1930's. They appear to be in a productive use at present and we hope you will consider their retention.

While Here Today is a useful means of identifying historic and architecturally significant San Francisco resources, it has several omissions. Primarily, the book stops at 1920 and its coverage of the area south of Market Street is far less extensive than it is in many other parts of the city. As a result, most of the properties we are bringing to your attention are not included in the book. As an example, the Call Building on Market Street, adjacent to the project area on its western Market Street boundary, is excluded. This building survived the 1906 fire and earthquake, and we believe it is a fine example of architectural design.

Secondly, we would call your attention to the 300 block of Fourth Street. The buildings here, which we believe are fine representative stylistic examples of their period, date mostly from the 1920's and 1930's. We would suggest that in a rehabilitated form structures on the east side of the 300 block would make a handsome office complex. Additionally, the Mission Revival commercial building, built in 1925, at 360 Fourth Street, is a relatively good example of that style of architecture.

While the community at large has generally not yet arrived at the point of thinking of 1920 and 1930 buildings as worthy of preservation, they are as representative of their period in American architecture as the Victorian house is of an earlier era. They are a part of the architectural continuum and should be regarded for their own respective place in our heritage.

It is, of course, our feeling that older structures must be able to perform useful community functions if they are to be retained. Based upon national experiences, and those within the City of San Francisco, it is evident that older buildings often can continue to serve the community. We only hope that the reuse potential of structures within this area will not be overlooked.

Thank you again for the opportunity to comment.

Sincerely,

John L. Frisbee

John L. Frisbee, III
Western Field Service Representative

cc: Mrs. G. B. Platt, Pres.
SF Landmarks Adv. Board

APPENDIX L

RELOCATION

1. Description of Relocation Benefits and Assistance
2. Past record of YBC Business Relocation

APPENDIX L_1

Relocation Benefits and Assistance

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 requires that the following relocation benefits and assistance be made available in all renewal and neighborhood development projects.

A. Relocation Payments. The Act provides for the following types of relocation payments:

1. Families and Individuals. Families and individuals displaced on or after January 2, 1971, may be eligible for:
    - a. Payment for moving and related expenses. The displaced person may elect to receive either:
        1. Payment for actual reasonable moving expenses; or
        2. A fixed moving expense allowance not to exceed $300 and a dislocation allowance of $200.
    - b. Payment to assist in obtaining a replacement housing unit. This may be either the payment described in Paragraph 1 or 2 below.
        1. A payment to displaced homeowners, not to exceed $15,000 and covering the following:
            - a. The difference, if any, between the acquisition payment made by the local agency and the cost of a comparable suitable replacement housing unit;
            - b. An amount to compensate the displaced homeowner for the present worth of any loss of favorable financing; and
            - c. An amount to compensate the displaced homeowner for reasonable closing costs incident to the purchase of a replacement housing unit.
        2. A payment to displaced tenants and certain others which may not exceed $4,000 and which may be either:
            - a. A payment to assist the displaced person in making a downpayment toward the purchase of a replacement housing unit; or
            - b. A payment to assist the displaced person in the rental of a replacement housing unit, for a period not to exceed 4 years.

2. Business Concerns (Including Nonprofit Organizations and Farms). Business concerns displaced on or after January 2, 1971, may be eligible for either:

   a. Payments to cover the following within certain limitations:

      1. Actual reasonable moving expenses.
      2. Actual direct loss of tangible personal property, and
      3. Actual reasonable expenses in searching for a replacement business, or

   b. A fixed payment equal to the business concern's average annual net earnings, but not less than $2,500 nor more than $10,000, if it is determined that the business cannot be relocated without a substantial loss of its existing patronage and it is not a part of a chain operation. In order to be eligible for a fixed payment, a business must have either:

      1. An average annual gross receipts of at least $2,000; or
      2. An average annual net earnings of at least $1,000; or
      3. Contributed at least 33 1/3% of the average total annual income of the owners.

B. Relocation Assistance. The Act requires each local agency to provide a relocation assistance advisory program that will:

   1. Determine the needs of displaced persons and business concerns for relocation assistance.

   2. Provide current, complete, and continuing information on the availability of suitable relocation resources, both residential and commercial.

   3. Assure that suitable replacement housing units will be available, prior to displacement, to persons displaced (see Paragraph 5c).

   4. Assist displaced business concerns in obtaining and becoming established in a suitable replacement location.

   5. Supply information to those displaced concerning Federal and State housing programs, disaster loan programs, and other Federal and State programs offering assistance to displaced persons and business concerns.

   6. Provide other advisory services to displaced persons and business concerns in order to minimize hardships.

Additionally, under the new Act, relocation assistance advisory services are also to be provided to persons and business concerns occupying property adjacent to the area where project or program activities are being carried out, when it is determined that they have suffered substantial economic injury as a result of these activities.

C. Assurance of Availability of Housing. One of the major provisions of the Act is the Section 210 requirement for assurance of availability of housing prior to displacement. No project, program or activity involving displacement will be approved by HUD until satisfactory assurances of availability of housing are received from the local agency. After approval, the local agency will be required to take constructive steps to accord with its assurances and to manage its relocation program so that sufficient lead time is provided between the commencement of the real property acquisition process (or the displacement-causing activities) and the undertaking of other project activities so that every individual or family that is displaced will have the opportunity to move to comparable decent, safe, and sanitary replacement housing which is adequate in size, within their financial means, and available on a nondiscriminatory basis.

APPENDIX L2
YERBA BUENA CENTER

BUSINESS CONCERNS RELOCATED FROM JANUARY 2, 1971 THRU JUNE 30, 1973

Relocated Within City - 63

Type Business	Number	Having Lost Employees	Remained The Same	Having Gained Employees	Gained After Losing
Manufacturing	5	1	3	1	0
Professionals	6	0	5	1	0
Wholesale/Retail	37	1	34	1	1
Non Profit Organizations	4	0	4	0	0
Mom and Pop Stores	1	0	1	0	0
Business or Personal Services	10	2	2	4	2
TOTALS	63	4	49	7	3
Relocated Outside City - 27					
Manufacturing	3	2	1	0	0
Professionals	1	0	1	0	0
Wholesale/Retail	14	2	4	6	2
Business or Personal Services	9	0	8	1	0
TOTALS	27	4	14	7	2

DEFINITIONS

Manufacturing - Light, heavy industrial manufacturing including garment manufacturing
Professionals - Doctor, Lawyers, Accountants, Architects
Wholesale/Retail - Small, medium or large distributors, wholesalers or retail merchants
Non-Profit Organizations - Any non-profit organization including storefront churches
Business or Personal Services - Barbers, Bars, Hotels, equipment or machinery repair operations, outdoor advertising, etc.
Mom and Pop Stores - Family run grocery, cafes, laundry or retail operations

YERBA BUENA CENTER

DISCONTINUED BUSINESS CONCERNS FROM JANUARY 2, 1971 THRU JUNE 30, 1973

Type of Business	Number	Reasons Discontinued		
		A	B	C
Manufacturing	2			2
Non-Profit Organizations	2		2	
Business or Personal Services	12	6	2	4
Wholesale/Retail	10	2	4	4
Mom and Pop Store	19	1	2	16
TOTALS	45	9(a)	10(b)	26(c)

Reasons for Discontinuing

a - Retirement/Death

b - Marginal operation dependent on income from immediate area

c - Economically infeasible to reestablish operations

APPENDIX M

AIR QUALITY

1. Basic Meteorological Parameters
2. VMT Generated by YBC
3. Natural Gas Emissions
4. Construction Activities
5. Equations, Diffusion Models, and Input Parameters

APPENDIX M_1

BASIC METEOROLOGICAL PARAMETERS

The meteorological inputs were developed for use in the *Wind and Air Pollution Control Study of YBC* by J. E. Cermack, et. al. These were based upon long-term data taken at various stations near the YBC. The parameters and the locations where they were monitored are as follows:

Wind speed and direction: Federal Office Building, 50 Fulton Street. The relative location are shown in figure 1.

Atmospheric stability (mixing depth): Oakland Airport.

The wind tunnel experiments included tests to find correlations between wind speed and direction at the center and at the Federal Office Building. The values presented in the YBC analysis are for wind speeds and directions correlating to the directions and velocities at the reference location (Federal Building). The following table summarizes the meteological conditions used in all these calculations.

	1976		1982	
	ave	peak	ave	peak
wind speed, m/sec	5.0	1.0	5.0	1.0
wind direction	S,W NW	S,W, NW	S,W, NW	S,W, NW
mixing depth, meters	500	200	500	200
atmospheric stability	C	D	C	D

average hours: 10 AM to 3 pm averaged
peak hour: 4 PM to 6 PM (late afternoon)
and 11 PM (late evening)

Source: URS Research Co.

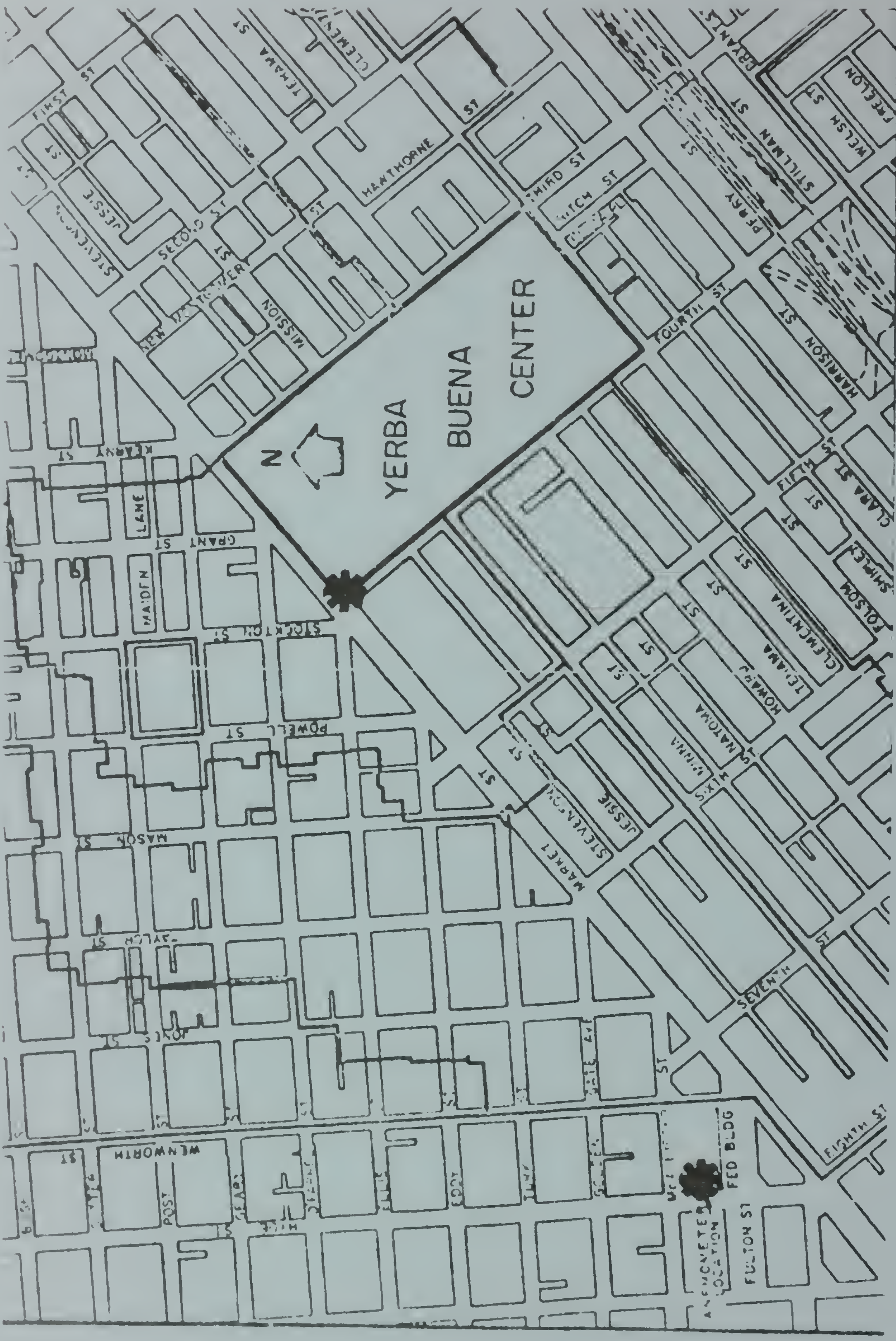


FIGURE 1

Position of Federal Office Building
in relation to YBC

APPENDIX M2

VMT Generated by YBC

A. Afternoon Peak Period (4-6 PM - 2 hours)

1. Current

(Peak Period = 77% of total of 4,300 garage spaces = 3,312* autos)

	Vehicles	Miles/Vehicle	VMT
SF	1,437	3	4,401
E. Bay	832	10	8,320
Pen.	706	15	10,590
N. Bay	307	10	3,070
Totals	3,312		26,381
ave./hr	1,656 vehicles		13,191 VMT

2. Projected (project as Currently Planned)

(Peak Period = 2,548 autos exiting 3,900 off-street spaces**)

	Vehicles	Miles/Vehicle	VMT
SF	673	3	2,019
E. Bay	561	10	5,610
Pen.	954	15	14,310
No. Bay	360	10	3,600
Totals	2,548		25,539
ave./hr.=	1,274 vehicles		12,770 VMT

---

*The available parking spaces in the Project area are used almost exclusively by commuters; approximately 77% of all commuters exit the downtown area during the afternoon peak period.

**Refer to Section IV. E. 1, Traffic.

3. Potential with Unlimited Parking and Street Capacities;* and Maximum Use of Facilities

-Convention Center (max. capacity = 50,000; approx.

2/3's or 33,350 exit during peak period; approx. 11,739 of these exit by auto w/1.4 persons per vehicle)

Destination	#Vehicles	Miles/Vehicle	VMT
San Francisco	3,621	3	10,863
Peninsula	2,382	15	35,730
East Bay	2,382	10	23,820
	8,385		70,413
ave./hour =	4,193 vehicles		35,207 VMT

-Hotel Guests - max. occupancy of 980; Max. of 70 exiting by automobile during peak period, with 1.4 persons per automobile; all destinations in San Francisco

70 persons x 1.4 persons/vehicle = 50 vehicles

50 vehicles x 3 miles/vehicle = 150 VMT
ave./hr = 25 vehicles; 75 VMT

---

*These figures are based upon the projected modal distribution of traffic which would naturally occur in YBC if not limited by street and parking capacity. Refer to Section IV. E. 1, "Traffic" for a discussion of the modal splits.

-Employment - (35,523 employees; 77% exit during peak period; 46% of these exit by automobile, with 1.4 persons ver vehicle; for a total of 9,041 vehicles*)

Destination	#Vehicles	Miles/Vehicle	VMT
San Francisco	2,351	3	7,053
East Bay	2,079	10	20,790
Peninsula	3,345	15	50,175
No. Bay	1,266	10	12,660
Total	9,041		90,678
ave./hr =	4,521 vehicles		45,339 VMT

Total Max. Potential VMT/hr.

Convention Center	35,207
Hotel Guests	75
Employment	45,339
	80,621 VMT

---

* Refer to Tables IV and VII Section IV. E. 1.

B. Evening Peak Period - Projected (1 hour)*

Destination	Vehicles		Miles/ Vehicle	VMT	
	Ave.	Max.		Ave.	Max.
1. Sports Arena					
San Francisco	2,191	6,839	3	6,573	20,517
East Bay	481	1,504	10	4,810	15,040
Peninsula	464	1,449	15	6,960	21,735
No. Bay	121	376	10	1,210	3,760
Totals	3,257	10,168		19,553	61,052
2. Theater					
San Francisco	505	841	3	1,515	2,523
East Bay	111	185	10	1,110	1,850
Peninsula	107	179	15	2,685	2,685
No. Bay	28	46	10	280	460
Totals	751	1,251		5,590	7,518
3. Convention Hall - public exhibits					
San Francisco	1,403	3,507	3	4,209	10,521
East Bay	309	771	10	3,090	7,710
Peninsula	297	743	15	4,455	11,145
No. Bay	77	193	10	770	1,930
Totals	2,085	5,214		12,524	31,306

---

* Refer to Table VIII, Section IV, E. 1.

Totals

	Vehicles		VMT	
	Ave.	Max.	Ave.	Max.
Sports Arena	3,257	10,168	19,553	61,052
Theater	751	1,251	5,590	7,518
Public Exhibits	2,085	5,214	12,524	31,306
	6,093	16,633	37,667	99,876

C. Off Peak Traffic (per hour)

Destination	Vehicles		Miles/ Vehicle	VMT	
	Ave.	Max.		Ave.	Max.

1. Convention Center Delegates (10 AM - 4 PM - 6 hours)

San Francisco	380	1,808	3	1,140	5,424
East Bay	250	1,189	10	2,500	11,890
Peninsula	250	1,189	15	3,750	17,835
Totals	880	4,186		7,390	35,149
ave./hr.	147	698		1,232	5,858

2. Hotel Guests (10 AM - 4 PM; 6 PM - 8 PM - 8 hours)

San Francisco	161	201	3	483	603
ave./hr.	20	25		60	75

3. Apparel Mart and Retail Stores (10 AM - 4 PM - 6 hours)

San Francisco	1,520	1,520	3	4,560	4,560
East Bay	410	410	10	4,100	4,100
Peninsula	600	600	15	9,000	9,000
No. Bay	600	600	10	6,000	6,000
Totals	3,130	3,130		23,660	23,660
ave./hr. =	522 vehicles			3,943 VMT	

4. Employment (10 AM - 4 PM - 6 hours)

San Francisco	999	999	3	2,997	2,997
East Bay	833	833	10	8,330	8,330
Peninsula	1,412	1,412	15	21,180	21,180
No. Bay	536	536	10	5,360	5,360
Totals	3,780	3,780		37,867	37,867
ave./hr	630 vehicles			6,311 VMT	

5. Public Exhibits (6-9 PM - 3 hours)

San Francisco	1,403	7,014	3	4,209	21,042
East Bay	309	1,543	10	3,090	15,430
Peninsula	297	1,486	15	4,455	22,290
No. Bay	77	386	10	770	3,860
Totals	2,086	10,429		12,524	62,622
ave./hr.	695	3,476		4,175	20,874

Totals	Vehicles		VMT	
	Ave.	Max.	Ave.	Max.
Convention Delegates	147	698	1,232	5,858
Hotel Guests	20	25	60	75
Apparel Mart & Retail	522	522	3,943	3,943
Employment	630	630	6,311	6,311
Public Exhibits	695	3,476	4,175	20,874
	2,014	5,351	15,721	37,061

APPENDIX M3

Natural Gas Emissions

The natural gas emissions were computed using point sources, as are described in the previous section. The analysis was conducted by hand methods, as only emission location was involved, this being a single stack on the physical plant at the southern corner of the YBC. Therefore, the discussions concerning the point source as given in the preceeding section apply for this source also.

Input parameters;

Basic meteorological paremeters: Appendix M_1

Sampling periods: one (24 hours), peak (one hour)

Area of study: 500 meters downwind (within YBC only)

Source strengths:

The natural gas emission factors are from the EPA*, and are as follows:

			$lb/10^6$ ft^3		
	Part	S0x	CO	HC	VOx
commercial heating units, using natural gas	19	0.6	20	8	75

---

*Op. cit. Compilation of Air Pollutant Emission Factors

Source: URS Research Co.

APPENDIX M4

Construction Activities

Construction activities were analyzed as to their impacts on local air quality. The model used for this activity involved the use of multiple point continuous emissions. The point sources represent individual groups of heavy duty equipment and their emissions. The model used is from Turner*, and is based on the same original work by Sutton** as the line sources outlined earlier. The equation used is as follows:

$$\frac{X}{Q} = \frac{1}{2\pi\sigma_y\sigma_z\bar{u}} \exp\left[-\frac{1}{2}\left(\frac{y}{\sigma_y}\right)^2\right]$$

$$\left(\exp\left[= \frac{1}{2}\left(\frac{z-H}{\sigma_z}\right)^2\right] + \exp\left[-\frac{1}{2}\left(\frac{z+H}{\sigma_z}\right)^2\right]\right.$$

The parameters are defined as follows:

X = downwind concentration (as grams/meter^3)
Q = source strength (as grams/sec.)

$\bar{u}$ = wind velocity (as meters/sec)

z = height above ground where X is calculated (as meter)
H = release height (as meters)

y = crosswind distance where X is calculated (as meter)

---

*Op. cit., D. B. Turner
**Op. cit., O. G. Sutton

σ_y, σ_z = horizontal and vertical diffusinity coefficients, computed as follows for various atmospheric stabilities and downwind distances:

Stability	σ_z	Range of X (downwind distance)
F	$0.06\,X^{0.8}$	100 --- 800 meters
	$0.16\,X^{0.65}$	800 --- 2,000
	$0.66\,X^{0.46}$	2000 --- 12,000
	$3.16\,X^{0.29}$	712,000
D	$0.09\,X^{0.85}$	0 --- 700 meters
	$0.24\,X^{0.70}$	700 --- 1,500
	$0.47\,X^{0.62}$	1,500 --- 20,000
	$1.23\,X^{0.51}$	720,000
E	$0.09\,X^{0.79}$	0 --- 1,000
	$0.28\,X^{0.63}$	1000 --- 3,000
	$0.91\,X^{0.48}$	3000 --- 30,000
	$5.37\,X^{0.31}$	30,000 ---100,000
C	$0.115\,X^{0.91}$	0 --- 100,000

B	$0.145 x^{0.94}$	0 --- 500
	$0.05 x^{1.1}$	500 --- 33,000

Stability		range of downwind distance
A	0.09 x 1.1	0 --- 300 meters
	0.01 x 1.45	300 -- 500
	0.0002 x 2.01	7500

Stability	σ_z (for all values of x)
A	$0.47 x^{0.9}$
B	$0.33 x^{0.9}$
C	$0.20 x^{0.9}$
D	$0.13 x^{0.9}$
E	$0.10 x^{0.9}$
F	$0.06 x^{0.9}$

About 10 multiple points were scattered within the boundary of the YBC to describe the construction activities. The values obtained were modified for sampling periods, as specified in the previous section. The peak values are for one hour, while the average values are adjusted for 24 hours.

The computer print out was confined to an area 500 meters on a side for the construction activities.

The parameter inputs for the constructor activity are as follows:

Basic meteorological parameters: (Appendix M1)
Sampling periods: one (24 hours), peak (one hour)
source heights: ground level
area of study: 500 M square
source strengths:

About one million cubic yards of material will be excavated and removed during a three month period of time. The following table summarizes the number of HDV on site at any one time, along with the final consumption:

DIESEL FUEL CONSUMPTION DURING EXCAVATION

CONSTRUCTION VEHICLE	NUMBER OF VEHICLES	RATE OF FUEL CONSUMPTION PER VEHICLE (gal/hr)	RATE OF FUEL CONSUMPTION (gal/hr)
Front End Loader	4	6.5	26.0
Bulldozer	3	10.5	31.5
Dump Truck	4	6.0	24.0
Auger Drill	1	4.0	4.0
Backhoe	2	7.5	15.0
Total			100.5

EPA emission factors* for diesel fuel combustion were used in conjunction with these rates, and are as follows:

	Part	SO_x	CO	HC	NOx
lb/10^3 gallons	13	27	225	37	370

An emission factor of about 4 lbs./yd.^{3} or about 0.3% of dirt excavated was used for particulates (fugitive dust). A value of 2 lbs/ton (1%) is given by the EPA** for rock transfer and storage. The calculated downwind concentrations were checked by monitoring excavation activities, and the values obtained were close to those predicted (about 20,000 µg/m^3 close to site during average conditions). This fugiture dust emission factor is not related to the suspended particulates standards. The fugitive dust is of much larger physical size and has different toxological properties.

Since the construction activities will not vary considerably, except as effected by meteorological conditions, only average emissions were used.

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* Op. cit. Completion of Air Pollution Emission Factors

** Ibid.

Source: URS Research Co.

APPENDIX M5

Equations, Diffusion Models & Input Parameters

James Lick Freeway

The James Lick Freeway affects the air quality at the YBC during south wind conditions. The model used in predicting the effects of this freeway on the ambient air quality at the YBC is based upon original work by Sutton* and presented in graphical solution form by Elliott and Barad**. The equation used by Elliott and Barad for a continuous infinite length line source is as follows:

$$\frac{D}{Q} = \frac{2}{\sqrt{\pi}\, C_z\, \bar{u}\, x^{(2-n_z)/2}} \exp - \left[\frac{h^2}{C_z^2\, x^{2-n_z}}\right]$$

This equation is a continuously integrated form of the original Sutton equation (ground level, continuous point source). This equation uses Sutton's method of images and is therefore appropriate for a release height, above the ground. The following list summarizes the definitions of the parameters used in this above equation:

D = total dosage, quantity per unit volume (such as grams/meter3).

Q = source strength, qravity per unit time per unit times per unit length of release (such as grams/sec/meter).

---

* Sutton, O. G., Micrometeorology, McGraw-Hill, 1953.

** Elliott, W. P. and M. L. Barad, Operational Prediction of Diffusion Downwind from Line Sources, Air Force series in Geophysics, No. 156. Office of Aerospace Research, USAF, 1964.

h = source release height (such as meters).

$\bar{u}$ = wind speed (such as meters/sec).

x = downwind distance where the specified dosage occurs (such as meters)

C_z and n_z = diffusion parameters, based on atmospheric stability as shown in the following table:

Stability Class	Range of SR*	$C_z^{n_z/2}$ (meters)	n_z
very unstable (A)	< - 0.45	0.002	-1.20
moderately unstable (B)	-0.45 to -0.20		-0.40
neutral (c)	-0.20 to 0.20	0.07	0.10
moderately stable (D or E)	0.20 to 0.45	0.07	0.20
very stable (F)	> 0.45	0.07	0.30

* SR = stability ratio, based on temperature lapse rate and wind speed.

The dosage values were presented in ppm (parts per million by volume), except for particulates which were expressed as micrograms/meter^3 (vg/m^3). The conversion factors used were based on the formula, $\text{ppm} = \frac{\text{g/m}^3 \, (2.404) \, 10^8}{M}$, where M = molecular weight.

The resulting values were also modified for wind angle against the freeway and for sampling period. The wind angle modification is necessary, because during a southern wind, the freeway is at an angle of 45 degrees with the wind. Generally, a 45 degree wind angle modification is the maximum that may be used for a line source*, but recent work has resulted in a possible increase of this angle modification, perhaps to as little as a 30 degree angle between the roadway and wind direction. This modification in absolute concentration is achieved by dividing the dosage by sinθ, where θ is the angle between the wind direction and the line source. Therefore, for any wind direction that is not perpendicular to the roadway alignment, the concentration increases. For the 45 degree angle modification used in this study, this increase amounted to 1.4 times the absolute concentrations.

---

* Turner, D. B., Workbook of Atmospheric Dispersion Estimates, National Air Pollution Control Administration, Cincinnati, Ohio 1969.

These values obtained from the figures in Elliott and Barad are only accurate for 3 minute sampling periods. Beyond three minutes fluctuations in wind direction have the effect of dramatically altering the horizontal diffusion parameters. Turner* has published a table with variation coefficients to be used. This table follows:

Sampling time	Ratio of calculated concentration to 3-minute concentration
3 minutes	1.00
15 minutes	0.82
1 hour	0.61
3 hours	0.51
8 hours	0.44
12 hours	0.39
24 hours	0.36

These values are only absolutely applicable to the location where they were initially determined. Different locations would have local topographic effects. Specific directions of wind flow may be highly channeled, due to buildings and topography. These values were used for the freeway due to the lack of accurate local information. Modifications of sampling periods greater than one day cannot be done by the above method. Major weather patterns will usually change in periods greater than one day, so these modifications should be based on "wind rose" patterns.

The specific input parameters used in the above model for the YBC were as follows:

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*Op. cit. D. B. Turner.

basic meteorological parameters (Appendix M).

sampling periods: ave. (24 hours), peak (one hour)
source height (elevated freeway); 16 meters
(since the plaza area of the YBC and the freeway are approximately at the same height, the release height was considered 0 for the YBC).
downwind distances;

at Folsom	140 meters
Howard	240 meters
Mission	330 meters
Market	440 meters

source strengths:

The freeway emissions are based on traffic volumes, traffic mix, study year and projected emission standards. The traffic volumes are based on figures obtained from the California Department of Highways (Gene Oliver, San Francisco office), and are as follows:

	vehicles/hr. (1982)
ave. hour	- 9,400
peak hour	-13,800

The emission factors were obtained from the Compilation of Air Pollutant Emission Factors, EPA, 1972,* and projected forward to derive 1982 emission factors. These values are almost identical to currently accepted California emission factors, with 10% heavy duty vehicles, including revised emission standards. The 1982 emission factors are based on vehicle mixes and standards as given in a manual by the California Division of Highways.** This procedure takes into account vehicle mix, vehicle age, deterioration factor, and emission standards. These emission factors are as follows:

---

*1975 Interim Emission Standards have been developed since the preparation of the statistics and can vary comparisons by up to 10%.

**Calif. Division of Highways, Motor Vehicle Emission Factors for Estimates of Highway Impact on Air Quality, 1972.

grams/mile (1982)

	CO	HC	NOx	Part.	50x
ave. hour (60 mph, freeway)	4.7	0.53	0.65	0.10	0.18
peak hour (20 mph, stop & go)	14	1.1	0.65	0.10	0.18

Adjacent Roadways (Urban Canyon)

The traffic on the adjacent roadways was analyzed, using an "urban canyon" model. Basically, this configuration considers limited lateral dispersion. The model considers wind parallel to the roadway, so common line sources are not usable. Instead, the roadway emissions are represented by many (about 10) point sources. The values used are representative of well mixed conditions, where the source configuration becomes masked. The basic equation used is from Turner,* and is as follows:

$$\frac{X}{Q} = \frac{1}{\pi \sigma_y \sigma_z \bar{u}} \left\{ \exp\left[-\tfrac{1}{2}\left(\frac{y}{\sigma_y}\right)^2\right] + \exp\left[-\tfrac{1}{2}\left(\frac{2B-y}{\sigma_y}\right)^2\right] \right\} \left\{ \exp\left[-\tfrac{1}{2}\left(\frac{H}{\sigma_z}\right)^2\right] \right\}$$

This equation is similar to the point source equation, except for the added parameter, B, where

B = ½ the width of the "canyon."

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*Op. cit., D. B. Turner
Source: URS Research Co.

This equation involves reflective computations, and the downwind comcentrations perpendicular to the canyon eventually become the same.

The Howard Street overcrossing effects on the YBC plaza were determined using similar methods as the line source method discussed for the freeway.

APPENDIX N

DISTRIBUTION LIST

Honorable Joseph L. Alioto
Mayor
City of San Francisco
City Hall
San Francisco, California 94102

Honorable Ronald Pelosi
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San Francisco Board of Supervisors
City Hall
San Francisco, California 94102

Mr. Robert L. Rumsey
Executive Director
San Francisco Redevelopment Agency
939 Ellis Street
San Francisco, California 94109

Mr. John Dykstra
Project Director
YBC Public Facilities
San Francisco Redevelopment Agency
939 Ellis Street
San Francisco, California 94109

Mr. David Collins
Project Area Director
YBC Site Office
820 Howard Street
San Francisco, California 94103

Mr. Allan B. Jacobs
Director
Department of City Planning
100 Larkin Street
San Francisco, California 94102

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Director
Human Rights Commission
1095 Market Street
San Francisco, California 94103

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Recreation and Park Department
McLaren Lodge
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Clerk
San Francisco Board of Supervisors
235 City Hall
San Francisco, California 94102

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San Francisco Housing Authority
440 Turk Street
San Francisco, California 94102

Mr. Thomas Mellon
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City & County of San Francisco
City Hall
San Francisco, California 94102

Mr. Dean Macris
Director
Office of Community Development
City Hall
San Francisco, California 94102

Dr. Francis Curry
Director
Department of Public Health
101 Grove Street
San Francisco, California 94102

Mr. Edward P. Joyce
Director of Emergency Services
850 Bryant Street
San Francisco, California 94103

Mr. Keith Calden
Chief, Fire Department
260 Golden Gate Avenue
San Francisco, California 94102

Mr. Harold L. Zellerbach
President
Art Commission
165 Grove Street
San Francisco, California 94102

Mr. S. Myron Tatarian
Director
Department of Public Works
City Hall
San Francisco, California 94102

Mr. H. Welton Flynn
President
Public Utilities Commission
City Hall
San Francisco, California 94102

Revan A. F. Tranter
Executive Director
Association of Bay Area Governments
Hotel Claremont
Berkeley, California 94705

Office of the Lieutenant Governor
Office of Intergovernmental Management
State Clearinghouse
1400 - 10th Street, Room 108
Sacramento, California 95814

Mr. Walter Newman
President
San Francisco Planning Commission
City Hall
San Francisco, California 94102

Mr. Donald Scott
Chief, Police Department
Hall of Justice
850 Bryant Street
San Francisco, California 94103

Mr. Richard D. Hongisto
Sheriff, County of San Francisco
City Hall
San Francisco, California 94102

Ms. Miriam Wolff
Director
San Francisco Port Commission
Ferry Building
San Francisco, California

Mr. John M. Woods
General Manager
San Francisco Municipal Railway
949 Presidio
San Francisco, California 94115

Mr. Arthur S. Becker
Director
San Francisco Parking Authority
450 McAllister Street #603
San Francisco, California 94102

Mr. Evelle J. Younger
Attorney General
Department of Justice
State Building
San Francisco, California 94102

Mr. D. J. Callaghan
Air Pollution Control Officer
Bay Area Air Pollution Control District
939 Ellis Street
San Francisco, California 94109

Mr. Fred H. Dierker
Executive Director
San Francisco Bay Region
California Regional Water Quality
Control Board
364 - 14th Street
Oakland, California

Mr. Paul Watt
Executive Director
Metropolitan Transportation Commission
Ashby and Domingo Avenues
Berkeley, California

Dr. Thomas Albers
Senior Physician
New Start Center
40 Holland Court
San Francisco, California 94103

Mr. Irving K. Baldwin
Director
Hotel Employers Association
of San Francisco
870 Market Street
San Francisco, California 94102

Mrs. Charlotte Berk
President
League of Women Voters
12 Geary Street, Suite #605
San Francisco, California

Father Boeteker
St. Anthony's Dining Hall
121 Golden Gate Avenue
San Francisco, California

Executive Director
AC Transit
508 16th Street
Oakland, California

Mr. B. F. Stokes
Executive Director
Bay Area Rapid Transit District
800 Madison Street
Oakland, California

Executive Director
S. F. Hotel Association, Inc.
456 Post Street
San Francisco, California

Mr. John Crowley
Central Labor Council
3068 16th Street
San Francisco, California

Executive Secretary
SF Building & Construction Trades
2601 Mission Street
San Francisco, California

Mr. William Brinton
Attorney
Cotton Seligman & Ray
One Maritime Plaza
San Francisco, California 94111

Dr. Arthur Carfagni
Northeast Community Mental
Health Service
121 Leavenworth Street
San Francisco, California

Mr. Eugene Coleman
Executive Director
Canon Kip Community House
705 Natoma Street
San Francisco, California 94103

Mr. William Dauer
Chamber of Commerce
400 Montgomery Street
San Francisco, California

Captain Stanley Davey
Harbor Light Center
Salvation Army
1275 Harrison Street
San Francisco, California

Mr. Alvin Duskin
c/o Friends of Yerba Buena
1534 California Street
San Francisco, California 94109

Filipino Newcomers Service Center
2540 Taraval Street
San Francisco, California

Mr. Richard Gryziec
San Francisco Tomorrow
741 North Point Street
San Francisco, California 94109

Ms. Amanda Hawes
Attorney
Alameda County Legal Aid
8803 East Fourteenth Street
Oakland, California 94621

Mr. Thomas Caylor
Junior Chamber of Commerce
400 Montgomery Street
San Francisco, California

Mr. Wallace Wortman
Director, Real Estate Department
450 McAllister Street
San Francisco, California 94102

Honorable John Barbagelata
Acting Chairman
Transit Task Force
1182 Market Street
San Francisco, California 94102

Mr. Alfred Heller
California Tommorrow
Monadnock Building
San Francisco, California

Mr. John Jacobs
Director
San Francisco Planning and
Urban Renewal Association
126 Post Street
San Francisco, California

Mr. Lyman Jee
Arcon Pacific, Inc.
300 Montgomery Street, 12th Floor
San Francisco, California

Mr. J. Anthony Kline
Attorney
Public Advocates
433 Turk Street
San Francisco, California

Mr. Frank Little
Pacific Telephone & Telegraph Co.
140 New Montgomery Street
San Francisco, California

Mr. Mike McCloskey
Sierra Club
220 Bush Street
San Francisco, California

Monseigneur C. J. McKenna
St. Patrick's Church
756 Mission Street
San Francisco, California

Mr. R. E. McKillican
Pacific Gas & Electric Company
245 Market Street, Room 732
San Francisco, California 94103

Mr. Peter Mendelsohn
Chairman
Tenants and Owners in Opposition
to Redevelopment
175-177 Jessie Street
San Francisco, California 94105

Mr. Chester Hartman
360 Elizabeth Street
San Francisco, California 94114

Dr. Louis F. Batmale
Chancellor/Superintendent
SF Community College District
33 Gough Street
San Francisco, California 94102

Mr. Bernard Averbuch
Executive Director
Market Street Development Project
870 Market Street
San Francisco, California 94102

Mr. Leland Meyerzone
Chairman
EOC District Council No. 5
730 Polk Street
San Francisco, California 94109

New Arrival Service Center
110 Sixth Street
San Francisco, California

Mr. Percy Pinkney
Executive Director
Community Street Work Center
66 Third Street
San Francisco, California

Mr. Donald Stover
San Francisco Landmarks
Preservation Board
City Hall
San Francisco, California 94102

Mr. Robert J. Sullivan
General Manager
San Francisco Convention and
Visitors Bureau
Fox Plaza
San Francisco, California 94102

Mr. Louis J. Silver
Secretary, 815 Mission Corp.
790 Mission Street
San Francisco, California 94103

Mr. Sidney Wolinsky
Attorney
Public Advocates
433 Turk Street
San Francisco, California

Mr. Gerald A. Wright
Attorney
650 California Street
San Francisco, California

Mr. David Olin Meeker, Jr. (2)
Assistant Secretary for Community
Planning and Development
Department of Housing and Urban Development
451 Seventh Street, S.W.
Washington, D.C. 20410

Mr. Maxwell Myers
Maxwell Myers Company
658 Howard Street
San Francisco, California 94105

Mr. Byron L. Nishkian
Nishkian-Hammill & Association
One Holland Court
San Francisco, California 94103

Mr. Charles Farbstein
Assistant General Counsel
Department of Housing & Urban
Development
451 Seventh Street, S.W.
Washington, D. C. 20410

General Counsel
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D. C. 20006

Executive Director
Advisory Council on Historic Preservation
801 - 19th Street, N.W., Suite 1100
Washington, D. C. 20006

Assistant Director of Science & Education
Office of the Secretary
Department of Agriculture
Washington, D. C. 20250

Executive Director of Civil Works
Office of the Chief of Engineers
Department of the Army
Washington, d.C. 20314
Attn: ENGCW

Deputy Assistant Secretary for
Environmental Affairs
Department of Commerce
Washington, D.C. 20230

Director
Office of Economic Opportunity
1200 - 19th Street, N.W.
Washington, D.C. 20506

Advisor on Environmental Quality
Federal Power Commission
441 G Street, N.W., Room 4005
Washington, D.C. 20426

Deputy Administrator
General Services Administration, AD
Room 6137
Washington, D.C. 20405

Assistant Secretary for Health
and Scientific Affairs
Department of Health, Education and Welfare
North Building
330 Independence Avenue, S.W.
Washington, D. C. 20201

Assistant Secretary for Environment
and Urban Systems
Department of Transportation
Washington, D.C. 20590

Assistant Secretary - Program Policy
Attn: Office of Environmental Project Review
Department of the Interior
Washington, D.C. 20240

Mr. Paul DeFalco, Jr.
Environmental Protection Agency
100 California Street
San Francisco, California 94111

Mr. Floyd E. Edwards
Regional Manpower Administrator
U. S. Department of Labor
450 Golden Gate Avenue
San Francisco, California 94102

Mr. Marvin H. Krotenberg
Environmental & Standards Officer
HUD - New York Region II
26 Federal Plaza
New York, New York 10007

Ms. Leslie Wiles
Office of Community Planning and
Development
Department of Housing & Urban
Development
451 Seventh Street, S.W.
Washington, D.C. 20410

Mr. William Oman
DeLeuw-Cather & Company
1256 Market Street
San Francisco, California 94102

Mr. Richard Goldman
Alcoa Building
San Francisco, California 94111

Mr. Lonell Johnson
c/o Loch Fellowship
Graduate School of Design
Harvard University
Cambridge, Mass. 02138

Mr. Don McChesney
P. O. Box 5986
Arlington, Texas 76011

Mr. Glen Frese
Pillsburg, Madison & Sutro
225 Bush Street
San Francisco, California 94104

Mr. John Frisbee
National Trust for Historic Preservation
Western Regional Office
802 Montgomery Street
San Francisco, California

Main Library
Civic Center
San Francisco, California 94102